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IN THIS ISSUE

Month By Month

How do refrigerator sales spread themselves over the 12 months of the year? Anybody who sells them has a pretty good idea, but a pretty complete study of the sales-by-months trend in department stores correlates the data for you. **Page 4.**

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'Count the Bolts'

"Count the bolts for the customer when you're trying to sell him the higher priced model!" Of course, the dealer's sales manager who said that was probably exaggerating—or was he? At any event, the gentleman has a pretty sound slant on why salesmen should be taught to "sell up." **Page 6.**

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Photography By Jobber

In the last issue we gave you the story of how a commercial refrigeration dealer made profitable use of a photographic hobby. This week we tell (on **page 13**) how a refrigeration parts and supplies jobber is putting photography to work for him.

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Ice Rinks To Order

Ever since we were bedazzled in our youth by the ice skating floor shows at the old Terrace Gardens in the Morrison hotel in Chicago we've liked fancy figure skating—but on real ice. Now the engineers in our industry have figured out how to make suitable rinks for the smallest kinds of exhibitions. **Page 9.**

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Not Only How, But Why

Question of the Week, answered on **page 15**, is "How Is a Two Temperature Valve Properly Used." For service men who like to know not only what to do, but why.

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Comfort for Mickey's Creators

The creators of Mickey Mouse, Donald Duck, and the famous movie cartoons that emerge from the Walt Disney studios are a hard-working bunch of creative workers. For this reason the new air conditioning system for the studios has as fine a control system as one may see in a comfort job. **Page 17.**

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Quick Freezing Made Easy

Quick freezing used to be classed as an industrial application of refrigeration, but with many locker storage plants doing some freezing work, it is getting pretty much into what the trade calls "a commercial application." A review of quick-freezing methods is offered on **page 14.**

Heating Show To Be Held on Coast In June of 1941

SAN FRANCISCO — The Pacific Heating & Air Conditioning Exposition will be held June 16 to 20, 1941 in the Exposition Auditorium in the Civic Center here, the exposition committee has announced.

This Exposition will be a special interim showing between the Sixth and Seventh Heating & Ventilating Expositions, these shows being held every two years. (Next Heating & Ventilating Exposition is scheduled to be held at the Commercial Museum and Convention Hall in Philadelphia, Jan. 26 to 30, 1942.)

Summer meetings of the American Society of Heating & Ventilating Engineers and the Heating, Piping & Air Conditioning Contractors National Association will be held in San Francisco during the week of

(Concluded on Page 2, Column 4)

Japs Discover Health Benefits & End Ban On Air Conditioning

TOKYO, Japan — Because public health was found to be more important than conservation of chemicals and materials for war use, Japanese authorities recently lifted a police ban which was placed on the use of air conditioning systems last summer.

Following the shutting down of air cooling systems in theaters, department stores, banks, and office building as a wartime measure, Japanese

(Concluded on Page 2, Column 1)

New England Jobbers Hold Outing Sept. 19

HARTFORD, Conn. — The New England Refrigeration Supplies Jobbers Association will hold its annual fall outing Sept. 19 at Avon Country club near Hartford. All jobbers in the New England area, as well as manufacturers' representatives, have been invited to attend the affair.

The program will include golf, softball, and dinner. Several golf and door prizes will be awarded. Art Wasserman of Marsden & Wasserman, Hartford jobber, is president of the association.

Salesmen Stick Better this Year, Survey Indicates

Bonus Plan on Range Sales Have Helped In Kansas City

KANSAS CITY, Mo.—In Kansas City, where the Electric Association has made a study of the turnover of major appliance salesmen and has taken some steps to cut down the rate of the turnover, some improvement seems to have been shown this year in the number of salesmen who have "stuck with the game."

G. W. Weston, secretary-manager of the association, believes that a cash bonus plan on electric range sales which is available to all dealers' salesmen, has been a vital factor in keeping salesmen in the business.

Of 165 salesmen who were working for 36 dealers on Dec. 27, 1939, only 48 had left the major appliance sales game by July 8, 1940. This is a loss of 29% of the salesmen who were employed by dealers at the start of the year.

In the previous year the study was made for eight months, from January to near the end of August, and the loss was 46% of the salesmen who had been employed at the beginning of the year.

Following is what the study made at the end of the first six months of this year showed:

165 salesmen working for 36 dealers on Dec. 27. (Average of 4.6 salesmen per dealer.)
48 gone by July 8 (loss is 29% of the 165).

117
38 hired in this period.

155 working July 8 for the 36 dealers. (Average of 4.3 salesmen per dealer.)
14 employed by 6 new appliance dealers.

169 total salesmen employed July 8 by 42 dealers.

Frigidaire Sets Up Office In Albany

ALBANY, N. Y.—Frigidaire has established a district office here to take over the distribution of its complete line of major appliances, formerly handled by Graybar Electric Co., Frigidaire distributor in this territory for the past five years. Headquarters are being maintained temporarily in the Graybar offices at 448 N. Pearl St.

The change in distributorships, Frigidaire announced, was made with

(Concluded on Page 2, Column 3)

Newspaper Exposes 'Unsound' Handling Of Food In N. Y.

NEW YORK CITY—Traffic in rotten poultry by certain food stores in New York City, most of them catering to the poorer trade, is being exposed by the newspaper "PM" in a series of articles appearing in its current issues.

Of 15 purchases of poultry and meat recently made by reporters and analyzed by an independent research laboratory, the newspaper reports, 12 were condemned as unfit for human consumption.

In addition to evidences of disease in the samples tested, several also were found to be in various stages of decomposition, according to the laboratory report. This would indicate a notable lack of refrigerated display and storage facilities. Section 163 of the Sanitary Code of the City of New York prohibits the possession and sale of meats, vegetables, or milk which are "unhealthy, unsound, unwholesome, and unsafe." The Health Department may ask for a $2,000 fine, a year in jail, or both for violations.

One of the stores at which the purchases were made by reporters had been prosecuted for violation of the Sanitary Code 18 times, another had been prosecuted 15 times, it was reported. Some of these "cheap chicken" dealers, the newspaper declares, operate what are known in the trade as "Saturday Night Stores"—places which are open only on Saturday nights, and which apparently have no refrigeration or other storage facilities of any kind. Left-over poultry usually is taken to a refrigerated warehouse for storage, the newspaper reports.

Kingsland To Direct Perfex Sales In East

NEW YORK CITY—George D. Kingsland has been appointed vice president in charge of sales for the eastern division of Perfex Corp., controls manufacturer. His headquarters will be at the Perfex office at 90 West St.

Mr. Kingsland has had 20 years' experience in the control field, and has a number of patents to his credit. He was active in the development and application of controls in the early days of the oil burner industry, and was a pioneer of the principle of zone heating and zone heating control.

For the past several years, he has specialized on the application of controls to space heating, ventilating, and air conditioning. He is a member of the A.S.H.V.E.

G-E Advertising Of Refrigerators Leads First Half

Frigidaire Is Second as Nine Manufacturers Spend $1,581,773

DETROIT—Keeping pace with the continuing upswing in sales, national magazine advertising expenditures by nine manufacturers of mechanical household refrigerators rose to $1,581,773 during the first six months of this year, according to figures compiled in a recent survey.

This figure tops by nearly a quarter of a million dollars the $1,389,944 spent by 11 manufacturers during the first half of last year, and falls less than $10,000 short of the total amount spent by 10 manufacturers during the entire year of 1939.

General Electric Co. again led the field, spending more money on household refrigerator advertising in nationally circulated periodicals than any other firm, the survey shows.

Analysis of G-E's expenditures shows $347,035 spent in 16 publications. Saturday Evening Post, as usual, garnered the biggest slice of this appropriation, snaring $103,500 compared to $56,700 for second-place Collier's.

Next biggest spender was Frigidaire, which spread $271,797 over 14 periodicals. Third place went to Kelvinator, which spent $242,722 in only five magazines.

Other manufacturers to top the $200,000 mark were Westinghouse, with $211,025 spent in eight publications, and Servel, which spent $202,199 to advertise its gas and kerosene refrigerators in nine national magazines.

(Concluded on Page 20, Column 1)

Mee Now Sole Owner Of Norge Distributorship

OKLAHOMA CITY, Okla.—William Mee, Jr. has purchased the interest of H. A. Barnard in Barnard & Mee, Inc., distributor in Oklahoma and the Texas Panhandle for Norge products.

New name of the organization will be W. M. Mee Co., Inc., with Mr. Mee continuing as president of the firm. Headquarters will be continued at the present offices, 120 E. Grand Ave. Same products will be carried as before, including Norge refrigerators, ranges, washers, and Emerson radios.

Sales manager of the company will be S. T. Menely, formerly a territorial representative.

Sales Talks Won a 'Pot O' Gold'

Winners of the two $1,000 first prizes in the Westinghouse "Sales Audition" contest get checks from Frank R. Kohnstamm, sales manager of the Westinghouse merchandising division. Left to right, are C. J. McGhee, salesman of the Ohio Public Service Co., Massillon, Ohio, Mr. Kohnstamm, Harold N. Eshelman, Eshelman Music Co., St. Joseph, Mo.

Mr. Cassaday's 'Up In the Air' Over His Business

DES MOINES, Iowa—H. V. Cassaday of the Cassaday Refrigeration Co., commercial refrigeration dealership and service firm here, is a man who literally "drops in" on his customers.

For Mr. Cassaday flies his own airplane to make service calls at distant points throughout the state of Iowa.

"In the morning of the day he is going to make calls in the territory, Mr. Cassaday routes his calls over the state just like a service man would route them over a city," relates L. M. Tesdell of Iowa Radio Corp., Des Moines refrigeration parts and supply jobbing firm.

"Of course, a large proportion of the towns where he has calls to make do not have airports, but he says he does not have any difficulty in locating a level field in which to land.

"His usual procedure is to circle the town once and then select his field. In the smaller towns an airplane circling the town is enough of a novelty so that when he makes his landing there is usually an automobile or two on hand at the field whose drivers are curious as to what is going on. These spectators generally provide him transportation into the town."

Mr. Cassaday finds that the airplane has greatly increased the number of service calls he can make in a day, and the use of the plane has an advertising value of a kind that he could not get elsewhere.

H. V. Cassaday and his two-seater Luscombe plane.

Appliance Promotion Man At Work

Here is a not-too-typical self-portrait of D. C. Alexander, chief publicity man, historian, and photographer of the W. D. Alexander Co., G-E air conditioning and commercial distributor in Atlanta. Associated with the company for more than 30 years, Mr. Alexander uncrated and set up the first G-E household refrigerator shipped to Georgia (1927), now handles "product, sales promotion, and advertising—and what have you."

Frigidaire Sets Up An Albany Branch

(Concluded from Page 1, Column 3)
the mutual consent of both companies.

Taking over Graybar distribution of its products, Frigidaire will serve, with the company operated office, a part of New York state, sections of Massachusetts and New Hampshire, and all of Vermont.

Manager of the new branch is J. S. Morgan, who became associated with Frigidaire in 1931, after having been with General Motors Acceptance Corp. since 1926. From Dayton, Ohio, where his Frigidaire service originated, Mr. Morgan later was transferred to Cleveland as district sales manager.

He moved to New York City in 1935 as resident representative of the utility division, remaining there until 1938, when he returned to Dayton.

Excursion Is Reward of James & Co.'s Dealers

ST. LOUIS — Some 150 General Electric dealers and salesmen in the territory of James & Co., St. Louis G-E distributor, were treated by the distributor to an all-day excursion on the streamlined river steamer Admiral as a reward for their sales efforts during recent weeks.

A family affair, the outing was featured by dancing, a basket lunch, and contests of all sorts.

Keeps Salesmen In, Ups Commission, Adds Gift Department—Presto! Sales Rise

HARRISBURG, Pa.—Sometimes a complete change can work wonders for a business. That's what H. C. Horner, manager of Burche Co., Westinghouse dealer here, found when he shifted his selling plan and increased this year's business 90% over the 1939 mark.

First he eliminated outside salesmen, got himself an aggressive six-man crew of floor salesmen, cut commissions from 10 to 6%, and applied the extra 4% to promotion and advertising. Increased floor traffic brought increased business, and salesmen are getting higher incomes than ever before, Mr. Horner reports.

The store is large, attractive, and designed "right in the groove" for floor traffic sales. Complete appliance stocks arranged in eye-catching displays make excellent sales tools for the salesmen. A gift department adds to the pulling power of the sales floor, with colorful dinnerware a feature. The gift department is designed primarily as an aid to store traffic, but no advertising is done on these items. Sales volume on gifts, particularly in June and at Christmas, put these specialties in the "profit item" class.

Big aid to building store volume is the schedule of daily radio spot announcements. These spots run from 10 to 15 times a day, playing up different items. The same announcement is never run more than once a day. During the refrigeration season, the text of refrigeration announcements is changed for each spot.

In handling store traffic, salesmen employ the "turnover" system heavily. They have found that it works better in many cases to turn over a prospect to another salesman for closing on the floor. The salesmen are protected on commissions. To further closing, a special booth off the sales floor has been provided where the closing salesman can "talk turkey" with the prospect.

This turnover process has done much to bring the prospect up out of the "special" class, according to Mr. Horner. Because most of the radio advertising stresses low prices, prospects come in with price in mind, and it has been found that the "selling up" process can be accomplished easier if the prospect is "stepped up" from the original salesman to a closer.

In selling reconditioned refrigerators, the same system has been successfully used. The prospect coming in to look at the reconditioned refrigerators is often sold up to a new box, it is said, by having a different salesman take over after the sales ground has been broken.

Keeping the salesmen geared to this plan are several morning sales meetings each week. The store's accounting system gives a day-to-day check on each department and each salesman. These figures tell which department is showing a profit for the particular day and which salesmen are doing the big selling jobs. This regular profit check gives the sales manager his ammunition to "gun" salesmen who are lagging.

Japs Approve Air Conditioning as a Health Measure

(Concluded from Page 1, Column 2)
public health authorities made a thorough study of temperature and ventilation. They reported that it was a menace to health to tamper with ventilating systems in public buildings.

As the air conditioning systems in most modern buildings also regulate ventilation, the result was that theater patrons inhaled the same stale air for hours on end. For this reason it has been found to be dangerous to interfere with air conditioning facilities, according to the Nichi Nichi, Japanese newspaper.

Coast To Be Host To Heating Exposition

(Concluded from Page 1, Column 2)
the exposition, according to present plans.

International Exposition Co., with headquarters in Grand Central Palace, New York City, will conduct the exposition.

Advisory committee for the exposition includes the following members:

W. L. Fleisher, chairman, consulting engineer, 1st Vice Pres., American Society of Heating & Ventilating Engineers; E. O. Eastwood, head, dept. of mechanical engineering, University of Washington; H. H. Douglas, air conditioning and heating engineer, Southern California Edison Co.; J. H. Gumz, Pacific Gas & Electric Co.; M. J. Hauan, consulting engineer; Daniel Hayes, board of directors, Heating, Piping & Air Conditioning Contractors National Association; J. E. McNevin, president, Heating, Piping & Air Conditioning Contractors National Association; N. H. Peterson, manager, Trane Co., San Francisco; T. E. Taylor, consulting mechanical engineer; B. M. Woods, professor, mechanical engineering, University of California; and Charles F. Roth, manager, and E. K. Stevens, associate manager of the Exposition.

Saviers & Son's Dealers Set New Sales Mark

RENO, Nev.—All sales records for electric refrigerators in the company's experience were broken in a recent contest conducted by H. E. Saviers & Son, Inc., Westinghouse distributor, with 21 dealerships participating.

Winner of the contest, with 200.6% of quota, was Robert Adams, Jr., of Adams & Reynolds, Lakeview, Ore., a town of 1,800 people. Mr. and Mrs. Adams will be guests on a trip to Mansfield and the New York Fair.

ACTC Students To Get Philco Units At $115

PHILADELPHIA—Through an arrangement between Philco and the Air Conditioning Training Corp. of Youngstown, Ohio, members of Radio Manufacturers Service may avail themselves of a "combination offer" including a course in air conditioning and refrigeration and a Philco-York air conditioner, reports Robert Herr, Philco parts and service division manager.

The offer, open for 30 days, combines home study training in commercial and domestic air conditioning and refrigeration, regularly priced at $174.50, and a model 41 Philco-York air conditioner, which lists at $129.50, at the special price of $115, Mr. Herr announced.

The air conditioner is intended for study and inspection purposes. After completion of the course it may be sold. Training course covers 120 lessons in both elementary and advanced phases of refrigeration and air conditioning. Graduates will receive diplomas designating them as certified air conditioning and refrigeration technicians.

Pennsylvania Once Again Near Top In Sales of Household Units

States and Territories	Quantity Household Low Sides July	Cumulative
Alabama	2,315*	21,931
Arizona	753	6,973
Arkansas	1,340*	15,669
California	16,763	139,561
Colorado	1,998	14,660
Connecticut	4,029	31,141
Delaware	566*	5,033
District of Columbia	1,318*	12,140
Florida	3,896	23,440
Georgia	4,330	28,499
Idaho	1,401	9,010
Illinois	17,618	159,840
Indiana	7,444	58,738
Iowa	4,159	38,014
Kansas	1,781*	19,388
Kentucky	3,138*	28,684
Louisiana	3,266	23,591
Maine	1,225	8,572
Maryland	3,027*	22,530
Massachusetts	8,099	69,101
Michigan	11,268	101,732
Minnesota	5,835	57,951
Mississippi	1,406	13,181
Missouri	4,843	53,767
Montana	633	5,946
Nebraska	1,761	15,771
Nevada	386	2,334
New Hampshire	952	5,865
New Jersey	7,761	78,805
New Mexico	447*	3,700
New York	24,967	202,274
North Carolina	3,623	36,844
North Dakota	536	4,058
Ohio	17,269	128,234
Oklahoma	1,587	19,925
Oregon	2,755	20,881
Pennsylvania	22,114	182,435
Rhode Island	985	8,416
South Carolina	1,843	17,388
South Dakota	474	4,678
Tennessee	3,351	34,061
Texas	7,908	80,652
Utah	1,778	10,693
Vermont	562	4,322
Virginia	3,906	30,551
Washington	5,267	38,195
West Virginia	2,428	21,779
Wisconsin	5,766	45,569
Wyoming	338	2,181
Total United States	**231,155**	**1,968,703**
Canada	5,060	46,317
Other Foreign (Incl. U. S. Possessions)	6,898	56,140
Total for World	**243,113**	**2,071,160**

*Includes sales and credits.

Locker Plants Start To Get Backing In Mississippi

JACKSON, Miss. — Locker plant activity in Mississippi, although slow in starting, is now picking up momentum, with plans announced for the early opening of the $100,000 plant of the Natchez Cold Storage Cooperative Association in Natchez and for a new plant to be erected by the Noxubee Refrigeration Association at Macon.

The Natchez plant constitutes a complete community farm center, with offices for county and home economics agents as well as a meeting place for farm groups. Ample storage is provided for not only meat, but also such products as pecans, peas, and potatoes.

The Macon plant will be erected adjoining the plant of Macon Creamery. To date, 200 persons have signed up for lockers.

New Zealand Concern Opens New Quarters

AUCKLAND, New Zealand—Auckland branch of Charles Begg & Co., Ltd., New Zealand agent for Leonard and Philco refrigerators and Philco radios, has recently been moved to a newly erected building on the corner of Vulcan Lane and Queen St., in the center of the city's business district.

Modern in every detail, both inside and out, the whole of the facade to each street is covered with cream, coral red, and green opaque structural glass, and an elaborate floodlighting system provides a colorful effect at night.

Interior planning also is on modern lines throughout, with special attention given to counters and display stands, enabling products to be displayed to best advantage. Walls are paneled in polish walnut, and interior color scheme is two shades of cream, relieved by silver bronze metal. Rubber flooring is designed to blend with the general color pattern.

In addition to Leonard and Philco, other appliances carried by the company include Princess refrigerators, washers, vacuum cleaners, and small appliances, Connor washers and ironers, Hamilton Beach mixers, and Rangette portable stoves. An extensive line of pianos, organs, musical instruments, and sheet music and records also is handled by the company, which was founded in October, 1861.

The company has eight branch offices throughout New Zealand, all offering a complete musical and electrical service. Principal wholesale operation is carried on through the Wellington branch. Charles E. Begg is general manager of the company.

Colorado Dealers Battle Tax on Time Contracts

DENVER—Threatened by a constitutional amendment which would place a tax of 5 to 10 mills on all interest-bearing instalment contracts, Colorado appliance dealers plan to join other retailers in an active campaign against that measure.

The amendment, No. 1 on the ballot of Nov. 5, would tax all intangibles, defined as "evidences of indebtedness," except for limited exceptions. Ordinary charge accounts would not be taxed so long as they did not carry interest. Merchants would be unable to levy interest on delinquent accounts, however, without paying the tax. Chattel mortgages and notes would be taxable.

Experts says that passage of the amendment will result in a general increase in the interest rate.

Sponsors of the amendment are a group of old-age pensioners who hope to increase pension payments throughout the state.

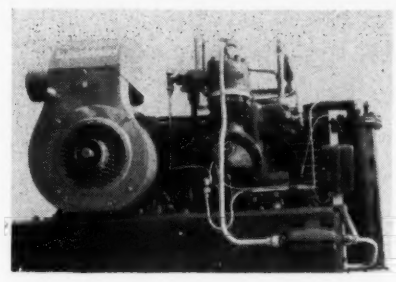
While the measure contains a lot of "molasses" purporting to be for the benefit of farmers and small home owners, as well as relief and school groups, authoritative experts declare there would be no money for the farmers and home owners for use as replacement of taxes.

Cold Plates Used In Food Barges Going Up the Mackenzie

EDMONTON, Alberta, Canada — Getting food up to the frozen lands of northern Canada is another job that banks heavily on refrigeration. Four portable coolers used to transport supplies up to the shadow of the Arctic Circle were recently installed by Bruce Robinson Electric, Ltd. for Northern Transportation Co.

The coolers, carried by barge up the Mackenzie river, have inside dimensions of 16 x 7 x 6 feet, and are insulated with 6 inches of Palco wool. The installation of the four coolers consisted of 20 Doleco cold plates, four Frigidaire compressors, driven by four 3-hp. Wisconsin engines. The coolers are placed on the barges for the long water trip, being on skids for transfer from one barge to another.

How Food Is Transported To Yellowknife, Canada



The barges operate on the Mackenzie river between Waterways, Alberta, and Fort Fitzgerald, located in the Northwest Territories. From this point there is an overland portage of 16 miles to complete a farther journey to Yellowknife.

Produce carried in the coolers is mainly frozen meat, but the temperature controls, which ordinarily are set to operate the coolers between —10 and —20° F., can be adjusted to operate at higher temperatures for fruit and vegetables.

These coolers, mounted on skids and shunted from one barge to another, operate on the Mackenzie River in the wilds of northern Canada. The barge-transported coolers are cooled by Doleco cold plates, connected to engine-driven Frigidaire compressors (as pictured at the upper left). Meat is the principal product carried.

Taking the Products To the Prospects

Real door-to-door workers are salesmen for W. C. Carter Co. The company furnishes the trucks, but salesmen buy their own gasoline.

* * *

Trucks Make Travelers Of Carter Salesmen

SCRANTON, Pa.—Working on the theory that "you've got to see people to sell appliances," W. C. Carter Co., General Electric dealer with stores in Scranton, Peckville, and Carbondale, Pa., provides its salesmen with a fleet of trucks to bring the appliances right to the door of the prospect.

The traveling squadron of salesmen are able to cover a great deal of prospect ground in the towns and communities of the Scranton area. Trucks carry appliances for demonstration to prospects, and salesmen, who have no "floor days" at the stores, make the prospect's own home the sales floor.

To make sure that every car call is "hot," salesmen pay for their own gasoline. Each salesman works on a salary, plus a bonus based on sales volume. Selling territories are protected, so that there is no overlapping of sales routes.

Outside closing of sales is encouraged. Salesmen who turn in a prospect are protected on that prospect only if the prospect comes into the store within a certain time. After that period, the prospect becomes a fair sales target for other salesmen.

Callbacks on customers are very important in the store's sales plan. The serial number of each appliance sold is entered on a yellow card for filing at the office. This card is kept on file for five days. If a callback report is not turned in by salesmen within this time, the office calls up this card for action.

After the first callback, the information on the user is entered on a white card for permanent record. The dates of sales on this card is used as a guide for callbacks in selling additional appliances.

Full demonstration of all appliances carried to the prospect's home is insisted upon. The firm's slogan is—"Presentation Without Demonstration Is Just Conversation"—and the fleet of trucks carrying appliances provides the means for a demonstration on every call.

3 Model Kitchens In Farm Appliance 'Lab'

FAIRMONT, W. Va.—Three model electric kitchens are features of the new rural electrification laboratory and demonstration center recently opened at the Jackson's Mill Four-H camp through the joint efforts of the state extension division and the state public utilities association.

Ranged along the right side of the building's auditorium, which seats 250 persons, are the three model electric kitchens, while a fourth kitchen occupies the stage center. Kitchens include a "U" type model, an "L" type model, and a "parallel" model. Complete with cabinet and working surfaces, the kitchens represent the types suitable for West Virginia farm homes.

A display of commonly used small appliances lines the auditorium's left wall. A diet kitchen and a laundry equipment center are located in a wing of the building. Basement display includes a dairy center.

When One-Fourth Equals Two-Fifths

Dept. Stores Did Over 40% of Their Refrigerator Business In 1939 In Second Quarter of Year

NEW YORK CITY — Department stores did more than two-fifths of their 1939 electric refrigerator business during the second quarter of the year—

Approximately 64% of the annual refrigerator volume of these stores was piled up in the five months from February through July, the "above-average" period as far as sales were concerned—

Geographic and other local conditions apparently exert a considerable influence on the monthly distribution of refrigerator volume, since in some areas the "above-average" season was packed into four months, while in others it was strung out for as long as seven months—

These are highlights of the month-to-month trend of refrigeration business reported in the study of "Seasonal Distribution of Department and Specialty Store Sales in 1939" made by the Controllers Congress of National Retail Dry Goods Association.

In addition to giving average monthly sales percentages on refrigerators for the United States as a whole, the report also subdivided its statistics on the basis of Federal Reserve districts, providing a more localized picture of the merchandising situation in various sections of the country.

Some rather interesting prospects as to the year-around sales possibilities of refrigerators and other major appliances may be obtained by a comparison of the month-to-month averages of the two types of products as contained in the report. The figures for refrigerator sales are shown in Table 1, those for other major appliances in Table 2.

A study of the two tables reveals that, in most areas, the peak season for other major appliances picks up just about where the refrigerator peak period leaves off. While March, April, May, June, and July were above-average nationally for refrigerator volume, August, September, October, November, and December represented the peak periods for business in other major appliances.

Comparison of the two tables also indicates that, while refrigerator volume of the reporting department stores for 1939 was pretty well concentrated into five or six consecutive months, in all sections of the country, major appliance volume, on the other hand, was scattered, in some sections, without following any definite "seasonal" pattern.

Last year's refrigeration business in the department store field apparently was most seasonal in the New York district, which includes the New York and New Jersey area. Table 1 shows that only four months in this area were above-average, these being April, May, June, and July. On the other hand, the Atlanta district, comprising part of Tennessee, Georgia, Alabama, Mississippi, Louisiana, and Florida, had a seven-month season, from March through September. The Minneapolis and Kansas City districts had six-month seasons, March through August.

San Francisco district experienced its first above-average month in April, whereas all other areas, with the exception of New York, got their volume business under way in March.

Despite considerable promotion last year, refrigerators apparently haven't caught on as holiday gift purchases. Other major appliances, however, appear to have made some headway in this respect. On a nationwide scale, only 3.7% of the business done by reporting stores during last year was obtained in November, while the December volume was only slightly higher, 4.3%. In no district was an average month's volume reported for either of the two months.

All districts except three, however, reported volume of other major appliance business above average in November and December last year. In fact, major appliance volume reached its peak in the Richmond, St. Louis, and Dallas districts during December, and nationwide volume for the two months was well over the monthly average.

Of the three districts which were below average on major appliances for the holiday months, only Atlanta showed a drop for both November and December. The Chicago district was up to 9.4% in volume in November, and the San Francisco area reported an average 8.3% for December.

* * *

Table 1—Dept. Store 1939 Refrigerator Sales By Federal Reserve Districts

District	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1940 Jan.
Boston	5.4	**10.7**	**12.8**	**14.1**	**14.7**	**13.9**	**7.7**	**6.7**	**5.2**	**2.4**	**3.4**	**3.0**
New York	4.7	**7.6**	**13.5**	**17.0**	**14.9**	**10.8**	**7.5**	**6.1**	**4.9**	**4.9**	**4.7**	**3.4**
Philadelphia	7.9	**13.0**	**12.3**	**18.3**	**13.8**	**10.0**	**8.0**	**6.5**	**3.1**	**2.3**	**1.9**	**2.9**
Cleveland	4.5	**9.2**	**14.4**	**15.5**	**13.7**	**9.1**	**5.5**	**6.4**	**5.2**	**4.7**	**6.6**	**5.2**
Richmond	5.0	**12.8**	**11.5**	**16.1**	**16.2**	**10.5**	**8.8**	**5.7**	**4.0**	**2.9**	**3.7**	**2.8**
Atlanta	4.9	**8.7**	**10.7**	**9.8**	**16.8**	**12.8**	**12.9**	**10.0**	**2.3**	**4.6**	**4.0**	**2.5**
Chicago	5.8	**12.3**	**14.3**	**15.1**	**13.3**	**10.7**	**5.3**	**5.6**	**3.4**	**3.9**	**4.7**	**5.6**
St. Louis	4.4	**14.0**	**9.7**	**13.2**	**18.0**	**12.0**	**7.1**	**8.3**	**5.5**	**2.3**	**1.4**	**4.1**
Minneapolis	5.1	**12.5**	**20.8**	**13.4**	**10.7**	**11.1**	**9.1**	**2.3**	**3.0**	**1.7**	**3.2**	**7.1**
Kansas City	3.5	**15.8**	**10.2**	**16.4**	**14.4**	**11.9**	**9.3**	**3.2**	**5.1**	**1.4**	**3.3**	**5.5**
Dallas	8.0	**10.4**	**9.6**	**17.0**	**13.1**	**9.5**	**8.1**	**4.9**	**4.9**	**3.9**	**3.8**	**6.8**
San Francisco	3.9	**6.5**	**13.5**	**12.2**	**10.7**	**13.5**	**10.3**	**7.4**	**5.4**	**5.3**	**4.4**	**6.9**
U. S. Average	5.2	**10.8**	**13.0**	**15.2**	**14.0**	**10.9**	**7.5**	**6.1**	**4.5**	**3.7**	**4.3**	**4.8**

Note: Boldface figures indicate months in which sales were equal to or above the average for the year (approximately 8.3%).

Table 2—Other 1939 Major Appliance Sales

District	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1940 Jan.
Boston	3.6	7.9	6.4	6.3	7.2	7.2	**9.9**	**15.2**	**12.4**	**8.4**	**11.2**	4.3
New York	6.3	6.9	**9.3**	**9.3**	5.4	5.7	**9.0**	**10.8**	**11.6**	**9.3**	**10.1**	6.3
Philadelphia	8.1	**9.0**	6.2	**8.6**	7.2	6.5	7.9	**9.7**	**11.1**	**9.3**	**9.6**	6.8
Cleveland	7.7	**8.4**	**8.5**	7.7	6.2	6.7	7.1	**11.1**	**9.0**	**10.1**	**11.0**	6.5
Richmond	4.4	8.2	7.4	5.1	5.1	6.6	7.4	**15.1**	**10.4**	**10.7**	**15.3**	4.3
Atlanta	4.8	**9.0**	7.8	**9.0**	**12.9**	6.4	**9.0**	**14.7**	**8.4**	7.2	6.3	4.5
Chicago	6.8	8.1	**8.9**	**8.9**	6.9	7.8	7.3	**11.1**	**10.3**	**9.4**	7.3	7.2
St. Louis	6.7	**9.1**	6.1	7.9	5.6	6.0	7.1	**10.5**	**10.8**	**8.6**	**14.0**	7.6
Minneapolis	5.4	7.2	6.9	7.1	5.7	6.1	**10.6**	**12.1**	**12.0**	**9.3**	**10.6**	7.0
Kansas City	5.5	7.7	7.3	**8.5**	**8.4**	**8.3**	**9.9**	**8.5**	**9.8**	**10.7**	**9.4**	6.0
Dallas	6.5	**10.4**	8.0	7.9	5.6	7.0	7.1	8.0	7.3	**11.2**	**11.8**	**9.2**
San Francisco	4.9	7.6	**9.6**	7.5	5.4	8.1	**9.0**	**12.0**	**16.4**	5.6	**8.3**	5.6
U. S. Average	6.3	8.2	7.7	7.8	6.5	6.8	**8.3**	**11.6**	**10.7**	**9.3**	**10.4**	6.4

WHO'S WHO WHERE

Manufacturers Personnel

Joins Crosley

GEORGE E. SMITH

* * *

G. E. Smith Named Crosley Treasurer

CINCINNATI—George E. Smith has been elected a vice president and treasurer of Crosley Corp.

He comes to Crosley from United Wall Paper Factories, Inc., Chicago, where he was general manager of the operations in the 10 branches of that company, and had supervision over all manufacturing and engineering functions.

Other companies with which Mr. Smith has been associated include Nash-Kelvinator Corp., the Budd Wheel Co., the Edw. G. Budd Mfg. Co., and Gimbel Bros., Philadelphia.

Promoted by Perfex

GEORGE D. KINGSLAND
New vice president in charge of eastern division sales for Perfex.

Commercial Cooking Meeting Oct. 10

CHICAGO—More than 150 utility executives and commercial cooking sales specialists are expected to attend the fourth annual National Commercial Electric Cooking Conference, to be held at the Knickerbocker Hotel here Oct. 10. J. F. Porter, Jr., vice president of Kansas City Power & Light Co., is chairman of the conference, which is being held in conjunction with the convention of National Restaurant Association.

Speakers on the conference program will include C. E. Greenwood, commercial director, Edison Electric Institute; I. S. Anoff, president, Food Service Equipment Industry, whose subject will be, "The Equipment Dealer Looks at Electric Cooking"; and W. A. Tadlock, Georgia Power Co.

Christine R. Pensinger, Illinois state food and textile advisor, will speak at the conference luncheon on, "A Women's Viewpoint on Commercial Electric Cooking."

Alco Names 3 Agents In Southwest Area

ST. LOUIS—Appointment of three new sales representatives in the southwest, to succeed Kenneth E. Way, Alco representative who died recently, have been announced by Alco Valve Co.

South Texas will be handled by E. G. Langhammer, 436 Main Ave., San Antonio, a specialist in refrigeration controls. Douglas Doan, 1218 Magnolia building, Dallas, will represent Alco in north Texas and Oklahoma. Mr. Doan formerly was an engineer for Airtemp.

The intermountain territory will be covered by Western Thermal Equipment Co., 2615 Lowell Blvd., Denver, Colo. G. B. Bloom is head of the company, and W. M. Snider is Denver manager.

Distributor-Dealer Appointments

Albany Branch Head

J. S. MORGAN
Manager of Frigidaire's new district office in Albany, N. Y.
(Story on page 1.)

G-E Names 4 Outlets For Small Appliances

BRIDGEPORT, Conn. — Appointment of four new distribution outlets has been announced by the General Electric appliance and merchandise department.

Kraus & Co., Providence, R. I., has been named a distributor for G-E fans, added to a line which already included radio tubes, cleaners, clocks, and heating devices.

Mar Le Co., Stamford, Conn., has been appointed a distributor for G-E heating devices.

Grand Light & Supply Co., New Haven, Conn., has been appointed a distributor for clocks and heating devices.

Electric Supply & Equipment Co., Greensboro, N. C., has been appointed a distributor for clocks, fans and heating devices.

Adds Fans & Pumps

LITTLE ROCK, Ark. — Refrigeration Supply Co., jobber, has been named state distributor for Robbins & Meyers fans and Gould pumps.

Doubles Floor Area

KANSAS CITY, Mo. — Automatic Temperature Control Co., distributor here for Minneapolis-Honeywell products, has doubled the size of its quarters by leasing the first floor and basement of the building at 3030 Main St.

Coast Commercial Firm

LOS ANGELES — Commercial Refrigeration Co. has been organized here, with headquarters at 233 S. Vermont Ave. Stewart Archibald and Robert W. Noll are proprietors.

After Cooling Business

LITTLE ROCK, Ark.—I. K. Electric Co. here has recently added ABC and StaKool attic fans and Hall air conditioning room units to its line of products.

Veteran Dealer Expands

PORTLAND, Ore.—Kuhnhausen's, an electrical appliance dealership active here since 1919, has opened the doors of its new and larger store at 617 S.W. Third Ave. The store is owned by A. E. and W. C. Kuhnhausen.

Ground floor of the new quarters contains 2,500 sq. ft. of sales space. Offices are located on a balcony.

Three broad horizontal bands of color on the walls form a contrasting background for appliance displays. Fluorescent lighting is used. A battery of floodlights located over the entrance illuminates the sales floor at night.

Near the stairs to the offices on the balcony stands a cabinet about 4 feet high. Each of the 14 shelves of this cabinet is divided in half, forming 28 convenient compartments in which to store sales literature.

In addition to Philco and Stewart-Warner refrigerators and Universal ranges, the company handles washers, ironers, water heaters, and a complete line of smaller appliances.

Celebrates Enlargement

VICKSBURG, Miss. — Wells & Lahatte recently celebrated enlargement of its store at 919 Clay St. with an open-house party. The store is dealer for Philco refrigerators and radios and Emerson fans.

Opens New Store

GREEN BAY, Wis.—Gabe's Radio & Appliance Shop, owned and operated by Gabe Medress, a veteran of 12 years in the appliance business in Wisconsin, has been opened here in the Fairfield-Bartran Clinic building, 113 E. Walnut St.

Major appliances featured in this shop include Philco and Zenith radios, Thor washers and ironers, and General Electric vacuum cleaners.

Mr. Medress plans to keep his shop open Monday and Saturday nights.

Sales Win Promotion

SILER CITY, N. C.—"Mac" McLaurin, star salesman for the local branch of Brown's Auto Supply Co., has been promoted to the position of branch manager.

Named Dept. Manager

NEW ORLEANS—George Blanchin has been appointed manager of the appliance department of Eddy Furniture Co., dealer for Philco refrigerators and radios, and Bendix home laundries.

New Norge Dealer

BALTIMORE—Hilltop Auto Parts & Supply Co., RCA radio dealer here, has taken on the complete Norge home appliance line.

Dodgers Promote Sales - - and Help Poor Kids

Thirty-two youngsters see the Dodgers off in two American Air Lines flagships when they start their western invasion. Dodgers bats poled out triples which gave them free vacations, paid for by New York's refrigerator men. (Left to right on companion way) Tex Carleton, pitcher; Harry J. Wines, chairman, Refrigeration Triple Hit Committee; E. F. Jeffe (straw hat), vice president, Consolidated Edison Co. of New York, Inc.; Herman Franks, catcher; Pete Coscarart, second base; Joe Vosmik, right fielder; Frank C. Myers and Mrs. Helen Leighty, Children's Welfare Federation of New York City, Inc.

* * *

'Triple Hit' Drive Sends 520 Kids To Camp

NEW YORK CITY—With a two week's vacation in the country for 10 under-privileged children riding on their bats, members of New York's three major league baseball clubs had banged out 52 three-baggers up to Aug. 21, to assure 520 kiddies a breath of fresh air as guests of distributors cooperating in Consolidated Edison Co.'s "Triple Hit" refrigerator campaign.

The baseball contest, running from July 15 to Aug. 31, was a sidelight of the "Triple Hit" drive, which featured "three fives": $5 for the buyer's old ice box, $5 down on the new refrigerator, and 5-year payment terms. The baseball tie-in figured prominently in newspaper advertising during the contest period.

As of Aug. 21, the Brooklyn Dodgers were leading the "triple hit" parade, with 25 three-baggers to their credit.

10-Year Cost Figures Featured In Display

DETROIT — The savings which modern electric refrigeration effects as compared with the icebox of a few years ago has been made the theme of an effective window display maintained by Good Housekeeping Shop, appliance dealership, in its branch store in the General Motors building here.

Designed to catch the attention of persons entering or leaving the building by the Second Ave. entrance, the display shows an old-fashioned double-door icebox and a 1940 Frigidaire side by side.

Atop the ice box is a placard with this legend: "This icebox will cost you approximately 15 cents a day to own and operate for the rest of your life.

"Cost on a 10-year basis:
"365 days @ 15 cents....$ 54.75
"10 years .....$547.50."

The 1940 Frigidaire bears a placard reading: "You can buy a Frigidaire . . . no money down . . . and in approximately 24 months it will have paid for itself."

Special model at $112.75 is featured in the display.

Ten-year cost of owning an electric refrigerator is shown on the card as follows:

"Operating cost approximately 2 cents a day.
"365 days @ 2 cents.....$ 7.50
"10 years .....$ 75.00
"Refrigerator $112.75
"Tax .....$ 3.37
"Interest—24 months ....$ 13.50
"Total cost—10 years....$202.62."

Sam's Selling Slants

V. E. ("Sam") Vining, merchandising manager for Proctor Electric Co., is the industry's most colorful salesman. This is the thirteenth of a series of Sam's famous "Selling Slants" messages to salesmen. An earlier series was published in the News in 1937, and later was published as a pocket-sized book.

FOLLOW-UP

Here is a practical suggestion.

After each sale call on the husband at his place of business within 24 hours after the installation has been made.

Analyze.

Husband's interest is at its peak. He has just made a major purchase and he is proud of the fact that he makes enough money to afford a purchase of this kind,—and he loves to tell the world that he is the type of man who provides all modern conveniences for his home.

Don't laugh at that description of the average man. It is a picture of you and a picture of me.

And a pouter pigeon.

We're all alike.

Satisfy the man's little vanity. He has earned it. He is entitled to it if for no other reason than the commission you earned on the deal.

And,

During the past 24 hours he has talked a lot and boasted a bit with his business associates about the new refrigerator he has purchased. He is a walking card index system of the refrigerator prospects in his office and he would love not only to tell you who the prospects are, but he will take great pride in introducing them to you.

If you aren't careful and experienced enough to keep your mouth shut, he will even do most of the selling, leaving nothing for you but to figure the size of the cabinet and supply the ink in your fountain pen.

An ounce of head work equals a mile of foot work.

'Count the Bolts' In 'Selling Up' on the Costlier Models, Advises a Sales Manager

'Salesman Must Be Taught How To Turn the Higher Priced Units If He Is To Survive'

YORK, Pa.—The advent of lower priced units in both refrigerator and range lines may prove a good advertising idea to bring more prospects to the dealer's store, but it may be a bad thing for the salesman who thinks that his ability to show a cheaper unit will solve his selling problems, according to Paul Haldeman, sales manager for H. E. Goodling Electric Co. here.

"Too many salesmen make the mistake of either condemning the cheaper unit to the customer, or of basing their entire sales strategy on selling the cheaper unit in order to get the sale before a competitor does," Mr. Haldeman complains.

"When a salesman disparages the lowest priced unit in order to create interest in a better refrigerator or range, he may create a suspicion in the prospect's mind that other units also may be below the standards of competitors. The result is that the salesman not only discourages the sale of his cheaper line, but also loses the prospect's confidence so that he cannot sell any other appliance.

"When the salesman concentrates his selling effort on the lowest prices in his line, merely to get the sale quickly, he reduces his own income to a large degree and often sells merchandise at a far lower price than the customer really intended to pay. Often, in such a case, the customer later blames the salesman for leading him to buy something not quite up to the quality he really wanted."

Mr. Haldeman's personal sales during a recent 12-month period totaled 260 refrigerators and ranges, and his average sale amounted to $160. He points to this as evidence that people will buy quality at a fair price if they are given the proper incentive.

"My first step in handling the price-conscious customer is to show him the unit he inquires about. I will not directly tell him that the unit is made with cheaper materials or that it will not give the service a better unit would give. The best way to get that idea across is by inference. Let the prospect believe that we have a pretty good opinion of the cheapest item we have in stock, but impress upon him that we really are enthusiastic about the quality built into the top price lines.

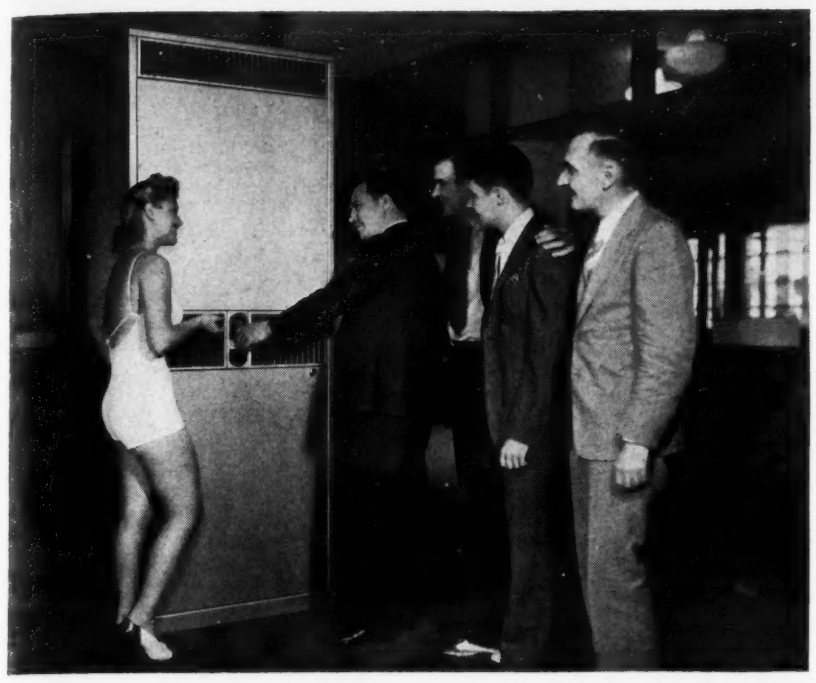
"All this can be brought out by proper demonstration. In showing a $114 refrigerator, for instance, we allow the customer to look at the box while we explain, without emphasis, the various good features of this model and plug the general merits of the entire line.

"We don't go into much detail at this price. But as we move on to the next higher price we emphasize certain features which the cheaper unit does not have. However, we don't say that it doesn't have them unless the customer asks.

"Then we move up to the next higher unit, increasing the emphasis on construction, and taking the time to point out each feature so that the customer can not underestimate our enthusiasm about that unit. For instance, the door of each refrigerator on the floor may have eight bolts in its construction, but when we get to the top price units we point to each bolt and count them one by one so the customer is sure to remember that the door has eight bolts.

"This simple method gets across the thought of quality, and creates the desire for the best instead of the cheapest."

Work Is Such a Pleasure



"Sixteen" Rogers, Chicago showgirl, wanted to know all about the Mills Perfectioner store cooling unit during a recent visit to the company's commercial refrigeration department in Chicago. Sales Manager F. E. "Jerry" Jernberg, shown here at the controls (but now at home recovering from a broken leg) is anxious to get back to work, perchance other fair visitors appear. With him are Harold Foster, Ernie Rezeau, Milton Long.

* * *

Orders 'By the Basket' Cheer Mills Executive During Convalescence

CHICAGO — Figuring that a "basket of orders" will help him convalesce a lot more than a "basket of flowers," members of the refrigeration sales department of Mills Novelty Co. have started a "get well" sales campaign for F. E. "Jerry" Jernberg, sales manager for Mills refrigeration products, who is convalescing from a broken leg.

Special "get well" order forms are being printed with return envelopes marked for "the bedside of 'Jerry' Jernberg." Special stickers known as "Shake a Leg" stickers are being made up and are for the purpose of speeding up business.

A letter announcing the campaign tells the story as follows:

"Jerry Jernberg, as fine and great a sales leader as any company ever had, got out of his car 10 days ago, stepped on a stone, twisted his right leg under him, and it broke.

"To the hospital he was rushed for X-rays and settings and now he is back in his South Side home, flat on his back in bed, his leg encased in a mighty plaster cast. He'll be there for September and maybe a little longer, but Jerry isn't stopped.

" 'September! This is always one of our very best months,' says Jerry. 'I'll run the September campaign from my bed!' So swathed in correspondence, literature, drawings, tools, models, photographs, and order sheets, Jernberg pushes on."

Masonic Job Awarded

DALLAS, Tex.—Pines-Natkin Co. of Dallas, Westinghouse distributor, has been awarded contract for the installation of air conditioning equipment in the new Masonic temple. Low bid was $46,375.

Room Cooler Sales To Hay Fever Victims Good Despite Cool Weather

LINCOLN, Neb. — Personal contacts by salesmen and the direct mailing of factory prepared literature on air conditioning units for home and office has boosted the sale of such appliances considerably over last year in Lincoln for several dealers, despite an unusually cool summer and weather that has been much less conducive to air conditioning sales than a year ago.

Norman Walt, an executive of Walt's music and appliance store, reports that during the abnormally cool month of August his company enjoyed "very satisfactory" sales by concentrating on professional men and hay-fever sufferers.

"The doctors and lawyers as a rule are in the upper-income group, and are excellent sales prospects because they tend to have a more progressive nature than the average citizen," he said.

"We concentrate on such prospects through newspaper advertising, a mailing list, and personal calls. When a physician, for example, is pleased with the operation of an air conditioning unit, he usually buys another for his home, and tells his friends, thus creating additional sales.

"In August, when the selling season for air conditioners is on the wane," he continued, "we have been able to hold up the sales volume by going out after the victims of hay fever. To any one who has suffered from this malady it is easily understandable why the sale of air conditioning units, both for the home and for the office, is made without much selling effort. Usually, it is necessary to offer easy terms on such sales, however, as the sufferers who can afford it arrange to get out of the hay-fever country if at all possible."

Mr. Walt said that while these air conditioners were advertised as low as $129.50, with easy terms, the average sale was around $190. This was due in large part to the concentration of salesmanship on professional men.

Cooling Aids Summer Sales of Bedding

LINCOLN, Neb.—Sales of wool blankets and other bedding which is promoted on the lay-away plan by department stores, have increased approximately 18% at the J. C. Penney store here since an air conditioning system was installed, it was reported by the management.

"Department stores always spend considerable money in the promotion of blankets, comforts, and similar winter bedding during the summer months," a member of the management pointed out, "and the cool, air conditioned interior seems to make women more winter minded.' "

'Cleanable' Filters Described in Catalog

CLEVELAND—Air filter panels manufactured by the Air-Maze Corp. here are described in a new catalog recently issued by the company. Built of crimped wire mesh and coated with a special adhesive, the Air-Maze line of filters are permanent, and may be cleaned at regular intervals.

Four lines of filters are offered, for severe service, industrial and commercial air conditioning, for low cost service in unit conditioners, and special "greastop" panels for use in restaurant and hotel kitchens, and for other commercial uses.

James & Roach Take Curtis Cooling Line

Wholesale Plan 'Closers' Boost Dealer Sales

By Henry Knowlton

DETROIT — James & Roach has been appointed dealer for the Curtis lines of packaged air conditioning equipment from 3 to 15 tons, according to Norman M. James, president. In line with the company's new policy of selling only tnrough dealers, Mr. James expects his organization to handle the Curtis line as a distributor in 1941.

The firm now distributes Stokol stokers through more than 300 dealers in Michigan, and handles related lines, including oil burners, water heaters, and furnaces.

Equipment sold by the company was displayed at the Michigan State Fair here last week. Prospects for home conditioning equipment were given a four-page rotogravure handout piece containing pictorial descriptions of all products sold by the company.

Mr. James reports that the company's new policy of selling through dealers has been "unusually successful," and that overall sales are now running 26% ahead of last year. Under the system, salesmen employed by James & Roach assist the dealer in closing sales when the dealer has a good prospect. The commission, usually 10%, is paid by the dealer.

In this way one good retail salesman can be of assistance to a number of dealers scattered throughout the metropolitan area. He does not have to search for prospects—as the dealers supply these.

Mr. James asserts that this method of handling a large dealer organization does away with price cutting, which is one of the worst situations in the automatic home equipment business.

"The first thing a small dealer will say to a prospect is: 'I will give you so many dollars off—if you buy such and such a product,' " Mr. James says. "With our system of sending one of our trained retail salesmen out to help a dealer, we are assured from the start that the price will not be cut, and we know our salesman will sell the prospect on the merits of our equipment, rather than reduce the price."

Fan Makers Show Test Methods

How the National Association of Fan Manufacturers tests centrifugal fans to establish standard ratings of air output in relation to static pressure was shown by this display during the recent Air Conditioning Show, sponsored by the Commonwealth Edison Co., in Chicago. The mechanic in the foreground is using special instruments to test the fan shown at left.

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F. M. COCKRELL, *Founder*

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Good Salesmen Are Born— Also Made!

SALESMEN, to many operating executives, are problem-children. You can't run the business without 'em, but wouldn't it be nice if you could? Yet, you'd miss 'em, at that. They're the boys who put the punch and the excitement and the dash and color and drama into business. They're also forever getting you, and themselves, into scrapes.

But what bothers some executives most about salesmen is their unpredictableness, the wide variation between the lowest and the highest salesmen in every crew. How are you going to know when you hire a man that he will be a winner? And then what do you do to get him out of a slump?

Characteristics of Good Man Defy Classification

One manufacturer we know hires only *blue-eyed* salesmen. Claims that a long period of trial-and-error tests have proved to his entire satisfaction that blue-eyed men make the best salesmen. This organization operates on a nation-wide scale, too; with branches in many cities.

Others have certain measuring sticks to which they make some pretense of adhering when choosing their salesmen. But in the main, most executives seem to wind up with the admission that good salesmen are born, and not made.

That being true, when they want to step up the results from their own sales staffs, they think in terms of hiring away star performers from competitors.

Salesmanship Is the 'X' Quantity In Business

Several years ago a prominent executive in the refrigeration industry was heard to remark: "If only you could breed good salesmen, like race horses, business could become more of a science. As it is, luck is a large factor in the success of any enterprise, and that luck may largely be interpreted as the quantity of good salesmanship which happens to align itself with the fortunes of the enterprise."

This large-scale resignation to the belief that the spark of salesmanship is somehow accidentally imbedded in the genes is reflected in the prevailing method of paying salesmen (in this industry, at least), which is on a commission basis.

Arguments In Favor Of Commission Basis

Those who favor this plan usually defend it by saying that it is the simplest method of being fair to (1) the company and (2) the salesman. Salesmanship being an indefinable, God-given quality, the only just method of determining its proper compensation is on direct ratio to results obtained. Or so the apologists for the commission basis will argue.

However, some observers have noted that many concerns which have maintained an excellent record of progress and earnings *down through the years* have been inclined to disregard, to some extent, the great differences between the apparent effectiveness of their various salesmen. These concerns usually pay salaries, with special incentives added.

Arguments In Favor Of Salary Basis

Their theory is this:

Repeat business is the basis for the long-pull success of any enterprise. And repeat business is built on continued customer satisfaction. This calls for salesmen who think in terms of *service to the customer,* rather than immediate volume. The commission salesman, they aver, is too apt to think largely in terms of getting the business *now,* rather than building goodwill for the long haul.

Let the star salesmen, the "born" producers, concentrate on getting new business, say these executives. Pay these star salesmen well, and in a fashion commensurate with their results. But don't expect to keep them. If a competitor doesn't proselyte them first, they'll likely leave on their own accord when new fields for their pioneering begin to open.

Salesmen Who Build Accounts, Rather Than Merely Get Volume At Any Price

But the kind of salesman you want to stick with you is the man who gives such good service to your accounts that they will want to give you their business even when competition cuts the price, or comes out with something flashy. These salesmen, the repeat-business type, concentrate on getting more business out of present customers—but never at the expense of the customers' own best interests.

By securing quantity orders, rather than dribbles and trickles, these men strive to make each account profitable. As they succeed in building their various accounts, they should be given extra compensation. These incentive rewards, incidentally, should be given soon after the deed is done, and not postponed until the end of the year. But their base pay should be a regular stipend, one that they can count on. If they can count on their pay, you can count on them.

They'll Do It Every Time . . . By Jimmy Hatlo

Refrigeration Industry Is Shifting Over

To sum up:

1. The commission form of salesmen's compensation is probably the fairest for the salesman and the employer—but not for the customer.

2. In a relatively new industry, the commission plan seems to get best results.

3. For the "long pull"—which depends on repeat business and *continuity* of good relations with customers, best results are obtained by paying salesmen salaries, or salaries-plus-timely-incentives.

4. The refrigeration business seems to be gradually moving over from the commission plan to the regular-income plan.

LETTERS

Happy Days In Texas

Norge Southwest Sales Co.
1201 Navarro St.
San Antonio, Tex.

Dear George:

Have yours of the 21st. I, too, can check with you on the privilege of living and working in Texas. I have been down here a little over a year now and, to me, it is the garden spot of any place that I have been, which covers pretty near any place in the United States.

I would like to answer your last paragraph, but I am afraid the information that I would give you would be pretty much biased—too much Norge—for, frankly, I haven't paid much attention to what the other fellow is doing, fearing that it might raise or lower my dobber, whereas, if I just keep plugging along on our own affairs, my spirits will always be up.

Norge is having an excellent year in the South Texas distributing area. We are well ahead of last year's activity, and the prospects for the coming four months look real bright.

Obviously, comments on the activity would have to include a weather report, as you appreciate. Almost throughout the entire area which we cover they have had more rains than they have had for many years in the past, with the result that, instead of seeing a lot of sand on the plains, you will find them green.

There is more feed for the cattle than there has been for years, and practically all kinds of produce and fruits will apparently come through with good crops and good prices.

On top of all this, the Government projects on air and army activity are also very helpful. They are employing a great deal of civilian labor.

Now, with the above comments—do you want a dealership?

Best wishes.

BILL ROWLES

P.S. You were quite a rambling young man. Perhaps you are going to settle down now, but if you get this way, want you to know that you have a most cordial invitation to let us know and we will try to make you feel at home.

He Wants a Job

64 W. 97th St.
New York, N. Y.

Editor:

Please excuse me for taking up some of your valuable time by addressing the following letter to you.

As a fairly regular reader of your AIR CONDITIONING & REFRIGERATION NEWS, I have noticed your criticism of the numerous air conditioning and refrigeration training schools all over the country.

These articles in your paper interested me a great deal because about one and a half years ago I finished a training course with the Air Conditioning Training Corp. of Youngstown, Ohio. The training given by that particular school consists of a correspondence course in refrigeration and air conditioning as well as two weeks of practical training. A so-called "Placement Department" is also included.

As far as my judgment is of any value, I have no reason to criticize the training provided by the Air Conditioning Training Corp. The Placement Department, however, is a complete failure. All they seem to be able to do is to write letters of recommendation to various air conditioning and refrigeration companies. After many unsuccessful attempts to obtain employment I have become rather discouraged and begin to wonder what the trouble is.

That is the reason why I decided to address myself to you, because I cannot think of anybody who would have a better picture of the situation than you have.

There cannot be any doubt that the air conditioning industry is steadily growing and consequently the industry will have to take on new men. I, therefore, cannot understand why they should not prefer men with at least a good theoretical training and with a short period of practical training. Or is it possible that these schools have such a bad reputation that nobody is willing to employ any of their students?

I readily understand that a big disadvantage may be the fact that I have always been working in the hotel industry and not in an industry which is related to air conditioning. On the other hand I do not think that at the age of 30 I am too old to switch over to another line of business. I am a high school graduate, speak and write three foreign languages (Spanish, French, German, and also some knowledge of Italian) and am willing to travel anywhere here or abroad.

Any explanation or advice you should wish to give would be greatly appreciated.

CONRAD HIRSCHMANN

Answer: Chief criticism of some air conditioning training schools in the country today is that they have vastly oversold the opportunities for young men in the industry at this time.

There is plenty of reason to believe that the air conditioning industry will become a big one some day. But that "some day" may be a few years in coming. On the other hand, it may be fairly soon. In the meantime, keep up your interest in the industry and your studies, and maybe your time will come.

Real Patriotism

Stewart-Warner Corp.
Chicago, Illinois
Sept. 3, 1940

To the Employes of
Stewart-Warner Corp:

STEWART-WARNER AND DEFENSE

In the semi-annual report you will note that the personnel of the company and its manufacturing facilities have been offered to the country. This offer has been made in your name and that of every employe of this company.

This is a business made up of real Americans and each and every one of us wishes to do his part in the coming months or years, for we realize that as a Nation we are in the most serious times we have ever known.

We and others like us are American industry.

There has been a lot of bunk about industry in the last few years. The talk still goes on. Statements are in circulation today to the effect that American industry is holding back; refusing to cooperate with the Government; demanding large profits; etc.

Some people believe this.

If your friends ask you what your company has done so far, you can tell them this:

Your company has bid (on a competitive basis) on 10 millions of dollars of Government work against many other companies.

So far we have been awarded approximately two million dollars worth of Government contracts. We have already begun making delivery on some of these contracts. The prices at which they were taken are such that up to July 31, we lost $60,000 on what we shipped. This loss represents what we have paid out of our own pockets to learn how to do our job. That is not profiteering.

We have purchased, or have on order, over $450,000 of new machinery. We are buying this machinery with our own money. That is not refusing to start until the Government finances us.

There are limits to what we can do, but we have reason to be proud of what we have done so far.

There is one kind of patriotism that stands on the street corner and makes a lot of noise, and another kind that buckles down to work and does the thing that it knows how to do best.

This is our country—and it's about the only country left where a man can call his soul his own. If we want to keep it that kind of a country we must all take a direct and personal interest in what goes on.

There is a National Election this Fall and it is the first duty of every American citizen to vote, and to vote as intelligently and as wisely as he can. If we don't take the care and the trouble to pick representatives of the right sort, we have no one to blame but ourselves.

I am urging you to think—and I am urging you to vote.

To vote you must register.

Registration days will soon be announced.

Be sure you and your families register and be sure you vote in November.

Truly yours,
J. S. KNOWLSON,
President

Indoor Skating Rinks Now Constructed With Small Direct Expansion Systems

This rink, ice for which is formed by low pressure direct expansion refrigerating systems, has won much favor from performers and public alike, over the artificial variety.

* * *

OMAHA, Neb. — Indoor skating rinks are now being constructed with direct expansion low pressure refrigeration systems, using "Freon-12" as the refrigerant, according to Roger Sprague of the Baker Ice Machine Co. here. Two recent installations, one portable rink in the Hotel Fontenelle, Omaha, and the other permanent, in the Hotel Nicollet, Minneapolis, have recently been completed.

According to Mr. Sprague, both installations were "rush" jobs. When Eugene Eppley of the Hotel Fontenelle booked an ice revue for a recent engagement, he asked the Baker Co. to build a 20 ft. x 22 ft. portable ice rink to be laid over a maple parquet dance floor. The order read, "produce a sheet of ice in three days."

Mr. Sprague reports that this meant building the complete rink, together with a sectional removable hardwood dance floor covering over the finished ice surface, in less than 72 hours time.

ALUMINUM COILS

The ice forming sections were designed from Baker aluminum fin coils, fabricated into a two-circuit rink grid, and operated under thermal control. A Baker "Freon-12" condensing unit under full automatic operation, together with auxiliary equipment, heat exchangers, receiver, Riley oil separator, dehydrator, manifold valves, and miscellaneous controls were installed in the check room which adjoins the Black Mirror-Bombay room, where the ice revue was held.

Mr. Sprague asserts that real ice is much superior to the artificial variety for fancy skating and ice revues. He reports that in the case of the Fontenelle Hotel job "the smooth even tempered ice surface produced and maintained throughout the engagement not only pleased the performers, but drew much interest from dinner guests, who were fascinated by watching the rink attendant spray water over the ice surface and seeing it freeze before their eyes."

PRELIMINARY SPRAYING

This preliminary spraying was for the purpose of creating a clear surface, so that patrons could trace the intricate patterns formed by skaters during special numbers.

Mullin Bros. Co., distributor, installed the second direct expansion rink for the Baker Co. in the Nicollet Hotel at Minneapolis, under the supervision of Mr. Sprague.

In this instance a permanent 17 ft. x 22 ft. rink was installed, and covered with a disappearing hardwood dance floor. The covering is moved off the rink and under the orchestra stand by mechanical means.

The Nicollet rink also employed direct expansion refrigeration, but three coil circuits were used instead of the two circuits installed in the Fontenelle rink. According to Mr. Sprague, the use of Baker sectional coil design makes it possible to build low pressure rinks of any desired size.

The entire rink equipment is packed in sectional crates for convenience of transportation and handling. Thus, if only five sections of a multiple section rink are wanted for a spot engagement, then only five units need be unloaded.

Mr. Sprague reports that the Nicollet rink was constructed in the same length of time it took to build the Fontenelle rink—three days. A Baker direct expansion "Freon-12" refrigeration unit was used, with a similar control system.

Paper Weight Shows Off Condensing Unit's Features

YORK, Pa. — As a constant reminder to prospects and customers alike of the service built into the new York V/W type compressor, York's sales promotion department has devised and is distributing a miniature reproduction of this type of compressor which is designed for less important but equally dependable service as a paper weight.

Inset in the top of this small cast metal miniature, which stands about 2½ inches high, is a glass-topped level. This level enables the salesman to use the tiny compressor model to good advantage in talking to a prospect about the balance which is claimed as a prime characteristic of the V/W unit.

Placed on a prospect's desk, the level probably will indicate that the desk is tipped, or off balance. This gives the salesman his opening cue on the subject of balance.

By tapping the model compressor sharply with a pencil, the salesman can make the little "ball of balance" in the level jiggle back and forth, thus rendering more effective his description of vibration as a by-product of unbalanced conditions.

And from this point it is but an easy step into the sales story on the compressor itself.

Temprite Unit & Special Water Storage Tank Used To Temper Bits For Mine Drills

CARDIN, Okla.—Unusual application of water cooling equipment is the Temprite installation made by the Burke Refrigerating Service Co. of Joplin, Mo., for the Bitco Co.'s branch office here. The job is used in the tempering of bits for mine drills.

The Bitco Co., with headquarters in Wallace, Idaho, specializes in sharpening drilling apparatus for use in mine work. The firm handles from 35,000 to 40,000 bits per month at its office here.

Fifteen of the bits are tempered at one time. The cooled water from the Temprite, which is set to deliver water at 40° F., is passed into a tank of approximately 40-gallon capacity and held at a temperature never exceeding 60° F. A circulating pump agitates the water in the tank.

The bits are at a temperature of approximately 1,400° F. before they get the cooling bath.

Two 3-hp. methyl chloride condensing units are hooked on to the Temprite equipment and operate at a suction temperature of 36° F.

An adjustable or throttling hand valve is installed in the city water line to the Temprite unit, and is opened during the operating period.

A 100-foot coil of Revere dry seal ⅝ inch o.d. copper tubing is coiled around the inside of the tank. A White-Rodgers remote bulb thermostat No. 1629 is immersed in this tank and is set for 60° F.

If the temperature in the tank goes above 60° F. the White-Rodgers thermostat opens an Alco magnetic liquid solenoid in the refrigerant liquid line supplying the 100-foot coil submerged in the tank. When the temperature in the tank again drops below 60° F. the White-Rodgers thermostat opens the circuit, the Alco solenoid closes, and refrigeration on the submerged coil in the tank is stopped.

The Temprite model M290W cooler with a capacity of 98 gallons per hour cooled from 90 to 40° F., was sold to the Burke Refrigeration Service Co. by Brass & Copper Sales Co., St. Louis supply jobber.

S. S. America Gets Big Ship Cooling System

NEW YORK CITY—The largest air conditioning system ever installed in a ship built in the United States will serve the S.S. America.

The conditioning system was included in the original architectural plans for the vessel, and will serve the cabin, tourist, and third-class dining salons, as well as beauty shop.

In addition to air conditioning, the America carries 41,400 cu. ft. of cargo refrigeration, enough to supply 26 full size freight cars.

A Frank Statement

About Kelvinator's Radically New 1940 Program That Makes Possible Sensationally Low Prices . . . And Greater Profits for Dealers

BY FRANK R. PIERCE, General Sales Manager
Kelvinator Division, Nash-Kelvinator Corporation

I KNOW you will be surprised when you see the prices printed on these pages

A few days from now they will be ... across the country But before that ... want to explain them to all retailers ... cal refrigerators—because there is not ... who won t be affected, no matter where ... be located

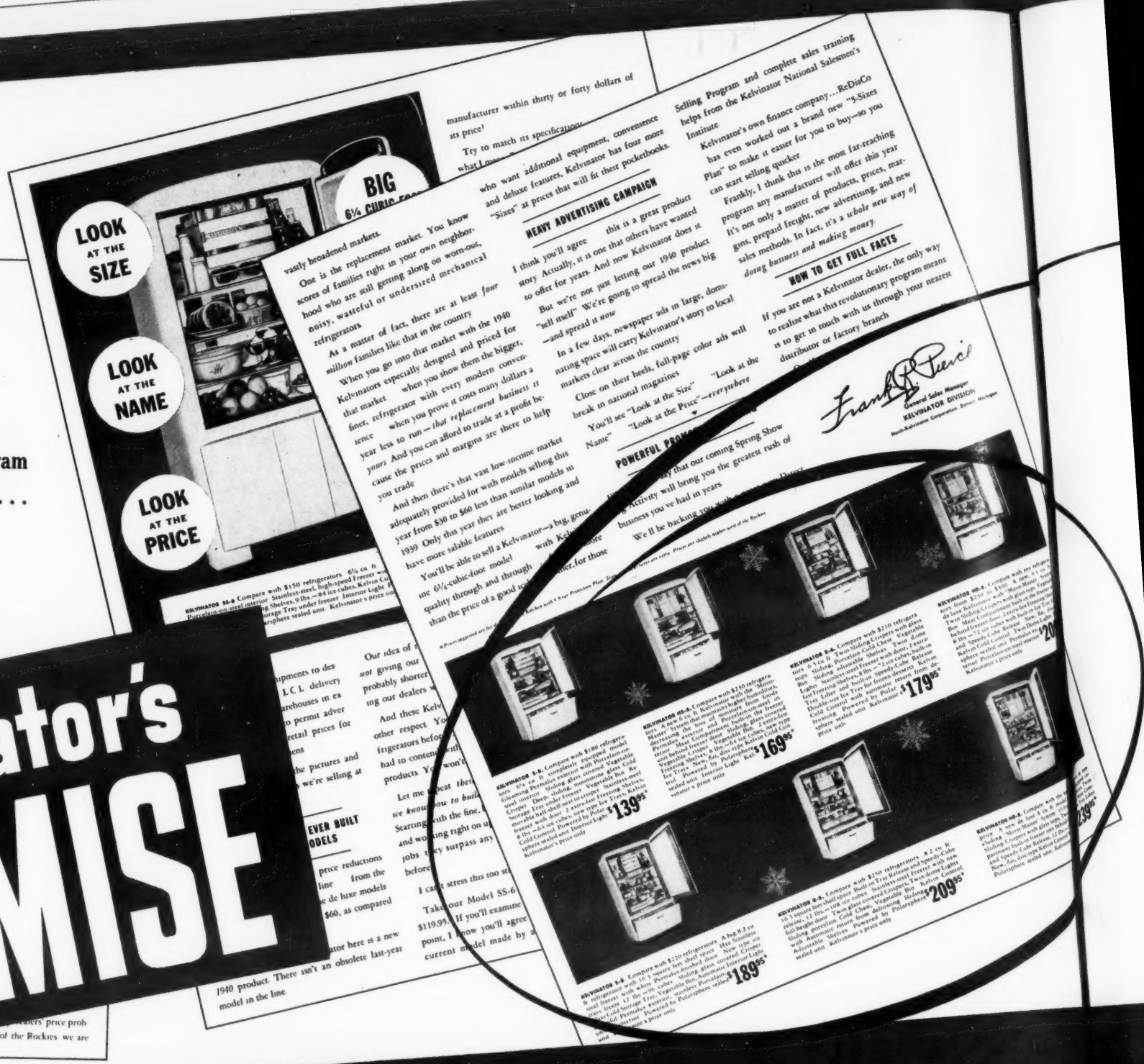
Those who built our industry—the de... have been waiting for several years for ... manufacturer to have the courage to give ... a program which meets today s conditions ... refrigeration business

In a word Kelvinator s prices and produc... for 1940 are part of a single broad-gauge pri... gram representing radical changes in funda... mental policy one that is sound as a dollar ... from start to finish a program that has these ... objectives

1 To protect and stabilize the profits of Kelvinator dealers

2 To meet the competiti... the electric...

...dealers price prob... ...tates east of the Rockies we are



Kelvinator's PROMISE

Kelvinator's RESULT

Kelvinator D... Last Year's... have a...

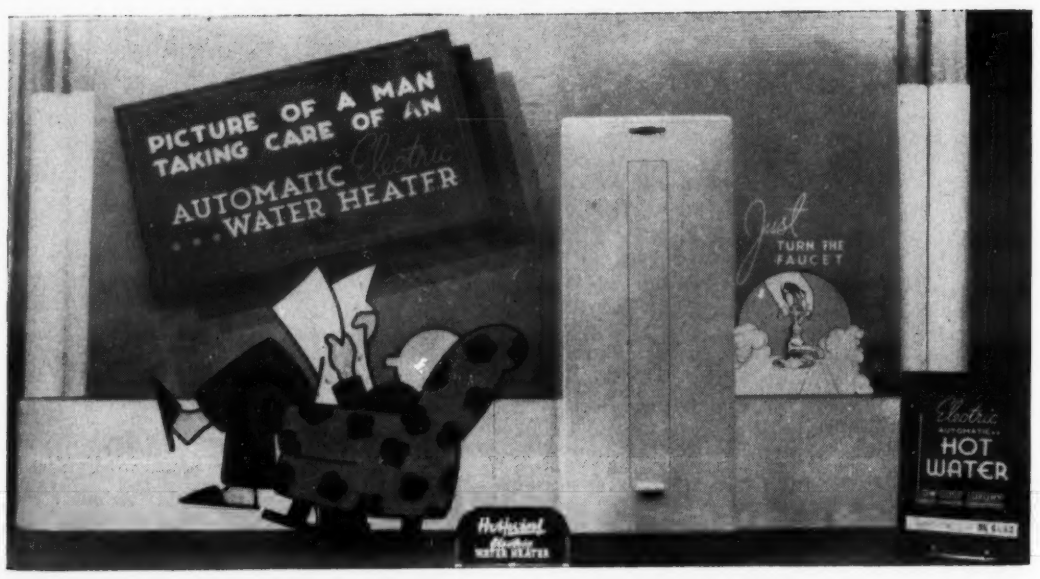
The Greatest STEP-UP PLAN in Refrigeration History was Announced last January for Kelvinator Dealers

orDealer Sales are 2¼ Times 's . . . Yet 80% of these sales ve averaged $160.23

FOUR LESSONS IN EFFECTIVE WINDOW DISPLAY

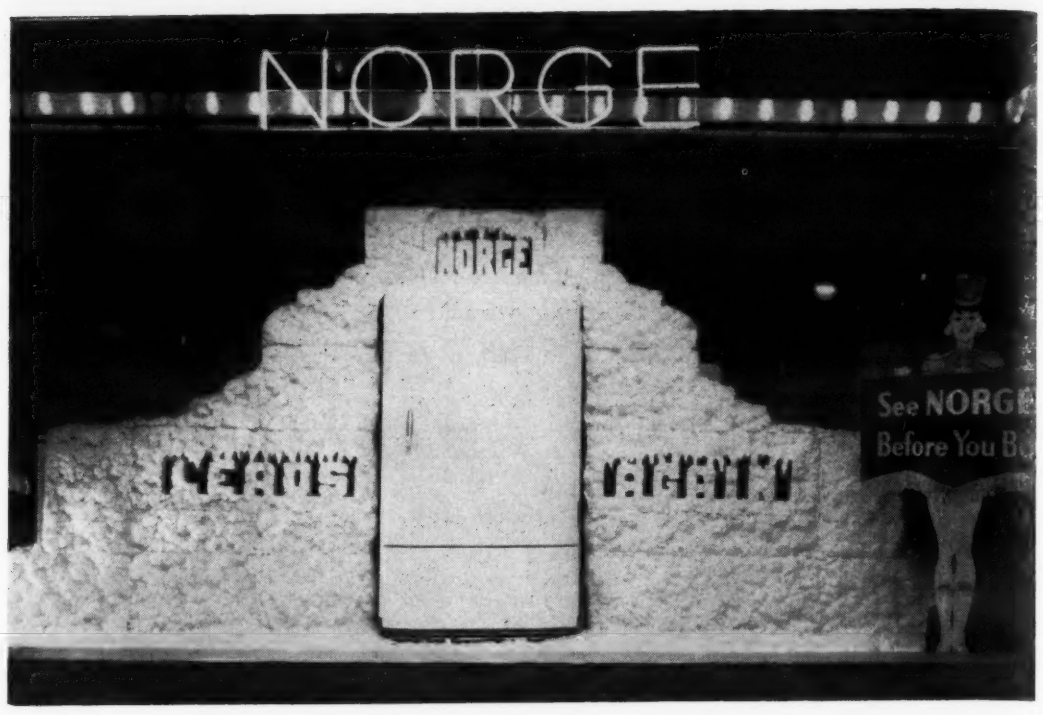
Electric Water Heaters Are Promoted By Dramatizing Their Safety . . .

. . . And Their Convenience



Quality of the competition in the electric water heater window display contest sponsored among electric utilities by the Modern Kitchen Bureau is evidenced by the fact that these two hard hitting set-ups were only good enough to rate two of the 10 third-place prizes offered. Philadelphia Electric Co. won $10 for the "safety" display, while Minnesota Power & Light Co. of Duluth was awarded the same amount for its "convenience" window. W. Gilbert Brown supervised construction of the Philadelphia display; R. E. Anderson handled the job for the Minnesota utility.

Refrigerator Displays Rely on Dramatic Symbolism of Snow & Ice . . .



. . . And A Story Well Told

Top—Effective because of its very simplicity is this display created by Norge Southwest Sales Co., Norge distributor in San Antonio, Tex., and local Norge dealers, and installed in one of the show windows of San Antonio Public Service Co. The featured 1940 model Norge refrigerator appeared to be frozen solidly in a huge block of ice and snow. Bottom—John A. Schwarz & Sons, Crosley dealer operating three stores in the Brooklyn area, used this telling "economy" display in the window of its Jamaica, L. I. store as the spearhead of a Crosley "Shelvador" sales drive. The penguin moved the pointer up and down to attract attention of passers-by to the unit's various features.

N. Y. Court Lowers Fee On Conditional Sales Contracts In Buffalo

BUFFALO—A ruling of considerable importance to the electrical appliance merchandising business in Buffalo has been made in Supreme Court here. In a test suit brought by the Marine Trust Co. against the county clerk, the court ruled that 10 cents, not 50 cents, is the legal fee for filing a satisfaction or discharge of a conditional sales contract with the county clerk.

The Marine Trust contended that Section 72 of the Personal Property Law prescribes a 10-cent fee. The county clerk argued that Section 70 says 50 cents.

While the test case involved only a $164 contract, it is considered important because hundreds of satisfactions or discharges are filed each year. During arguments, Assistant Treasurer John M. Galvin of the Marine said that an increase of 40 cents in the filing expenses "would increase the consumer's financing costs by a substantial percentage."

Crosley Offers Three New 'Glamor-Tone' Displays

CINCINNATI—Three displays for its Glamor-Tone radios, phonograph combinations, and recording sets are being supplied to dealers by Crosley Corp. These displays are in full color and picture Beatrice Blaxton, New York model.

Radio cabinets appear in realistic colors, and the girl in her peppermint candy dress of red and white stripes.

Two are life-size, one measuring 68 inches high by 43 inches wide, the other 56 inches high by 44 inches wide. The small one is a reproduction of one of the larger displays.

'New Refrigerators For Old'

Paul Abelson (left) and Frank Kutil of Kutil Refrigeration Service, Sioux City, Iowa, pose in front of the specially designed switch tester used in checking calibration of household refrigerator switches.

Service man at work reconditioning a refrigeration unit. The reconditioning job costs dealers from $15 to $22 per unit.

* * *

Service Co. Specializes In Reducing Dealers' Trade-In 'Headaches'

SIOUX CITY, Iowa — Rebuilding household refrigerators for dealers constitutes an important part of the service business of Kutil Refrigeration Service here.

Operated by Frank Kutil and Paul Abelson, the company also sells Mills compressors, Brunswick Blue Flash beverage coolers, and handles service work on Birdseye frozen food cases on a contract basis.

Local appliance dealers and department stores send their "trade-ins" to the Kutil company, regardless of condition. The boxes are either accepted for repair and reconditioning or are junked. Usable parts are salvaged.

According to Mr. Kutil, the cost of reconditioning these units runs from $15 to $22 to the customer. This price does not include refinishing of the exterior. When refinishing is necessary, it is handled by an outside firm at a cost of from $5 to $6.

In addition to rebuilding used refrigerators, the company sold approximately 200 Mills compressors in the last two years. These were installed on all types of small commercial systems, including beer cooling, liquid cooling, meat display cases, reach-in and walk-in refrigerators.

Several locker plant jobs have been completed by the company, and Mr. Kutil reports that the opening of some 50 miles of new R. E. A. lines in this area has opened a new market for locker plants, and for commercial refrigeration.

The company does not make a business of selling air conditioning, although a Philco-York window type room cooler is kept on display in the company showroom. Installation work is done, however, particularly for chain buyers, who purchase air conditioning equipment direct.

For use in the well equipped shop, Mr. Kutil has developed a special "switch tester" for use in checking the calibration of household refrigerator switches. A thermometer is inserted in a cylinder, the temperature is reduced to the desired point by a small compressor and held at this point until the thermometer can be removed and the switch bulb inserted.

Mr. Kutil asserts that it is possible to calibrate a household refrigerator switch for both on and off positions in a very short period.

Put Your Hobby To Work

California Jobber Uses Camera As Effective Sales Aid

LOS ANGELES — There's an old axiom to the effect that business and pleasure don't mix, but Julius Kinsler, member of the recently formed refrigeration parts jobbing firm of Authorized Supply Corp., has managed to profitably combine his business (selling refrigeration parts and supplies) with his hobby (photography).

He first put his photographic knowledge and experience to work on the company's behalf by taking pictures—sometimes posed, but more often candid—of the service men who came to Authorized Supply's counter as customers. Next time these men dropped into the company's store, they saw their pictures posted on an attractive counter display board made of red-painted corrugated cardboard.

As though this were not enough incentive to make the service men call back, Mr. Kinsler adopted the policy of giving each man as many prints of his own picture as he desired, without charge or obligation.

As a second step in his "picture promotion program," Mr. Kinsler has begun a series of dramatic photographs of commonplace articles which service men handle every day in their work, but think little about because of their familiarity.

Arranged in pattern groups against a black background, isolated completely from their normal surroundings, even such prosaic items as valves and fittings have an arresting appearance in Mr. Kinsler's photographs. Most service men look twice at these pictures on the wall, often "seeing" the article pictured for the first time.

Carrying his "play while you work" policy still further, Mr. Kinsler is planning to do a series of pictures of the service trucks which park outside the company's building, highlighting their interesting features.

Lights, Action For Henry Valves

Pictured at left is the illuminated flasher display being furnished to refrigeration parts jobbers by Henry Valve Co. in connection with the company's line of diaphragm packless valves. The display shows a packless valve in cross-section with full explanation of design and features of construction. The young lady, it is understood, is not standard equipment.

New Commercial Dealer

LOS ANGELES—A new dealership, Commercial Refrigeration Co., has been opened by Stewart Archibald and Robert W. Neil at 233 S. Vermont Ave. here.

Three Methods of Quick-Freezing

A Description and Analysis of the Spray, Plate, and Air Blast Methods of Quick-Freezing Foods, And an Explanation of Their Use

By Van Rensselaer H. Greene, Consulting Engineer*

Quick freezing divides itself up into three distinct divisions, namely spray freezing, plate freezing, and the air blast method. All of these respective systems have a distinct advantage over the other, dependent upon the products to be frozen.

Spray Freezing

Originally spray freezing was adapted to the quick freezing of whole fish and consisted of a tunnel or cabinet through the nozzles of which cold salt brine spray is pumped under pressure over and over the product. As the demand for the freezing of products other than fish increased, and particularly the freezing of vegetables, sugar syrup was used as a cooling medium in place of the salt solution.

Today, for the freezing of fruits, the spray system using an invert sugar solution gives the most satisfactory performance.

Ordinary sugar is a sucrose derivative and this form of sugar is not satisfactory for quick freezing purposes because of its crystaline structure and high freezing temperature. It so happens, however, that as sucrose sugar is treated with a solution of hydrochloric acid, sucrose sugar breaks down into a 50-50 mixture of dextrose sugar and levulose sugar.

Dextrose sugar has the property of freezing out at a still lower temperature than sucrose sugar but at a higher temperature than does levulose sugar, the result being with the use of a 50-50 mixture of dextrose and levulose sugars, commonly known as invert, a satisfactory low temperature can be produced for the quick freezing of fruits.

Attempts have been made to still further increase the percentage of levulose in an invert sugar in order to reduce further the freezing temperature of the mix. While it is possible to do so in the laboratory, it is not practical to do so commercially, first because of the expense and second because of the high viscosity of the pure levulose sugar which makes it too thick at low temperatures for convenient pumping.

Many fruit products, noticeably apples and peaches, oxidize readily in contact with the air and develop brown spots. The quick freezing of these two products in contact with a cold invert sugar causes the sugar to penetrate into the pores of the fruits, thus replacing the air content of the fruit with sugar, as well as sealing the surface of the product against further oxidation.

CHERRIES AND BERRIES TOO

This method of freezing applies also especially well to strawberries and cherries in which the acid content is modified by the effect of the invert sugar.

In conjunction with the freezing of fruits by the spray method, using invert sugars, it is an interesting fact that it is possible to control the absorption of sugars by the fruit itself so as to increase the weight of the product by the addition of the invert sugar to almost any predetermined point and in commercial practice the best results have been found when the weight of the product, after having been frozen under the sugar solution, has increased in weight approximately 10%.

Limited tests would seem to indicate that by continuing the length of time that the fruits to be frozen remain in the sugar solution that the increase in weight of sugar absorbed by the product can be brought up to a glace state so that it may ultimately be possible to make fruit preserves without the use of cooking.

In spray freezing the rapid rate of heat transfer caused by the impinging of the cold sugar syrup against the fruit to be frozen produces the same crystalizing result as do other types of freezing at lower temperatures so there is the added advantage of having the product meet all of the exacting requirements of quick freezing at a temperature which is considerably higher than other types used.

Plate Freezing

The standard plate type freezer is exemplified by the Bird's Eye process. Here the product to be frozen is contacted between two refrigerated plates which are maintained at a temperature of approximately —20° F.

This type of process depends for its freezing principle upon a contact between the freezing plate and the product to be frozen and since this contact is smaller in percentage to the area of the product to be frozen than it is with the spray system, it requires a correspondingly lower temperature within the plate to produce the same time of freezing and quick frozen results.

This process is particularly well adapted to packaged goods and has many interesting characteristics.

One of the major problems facing the frozen food industry now is the question of shrinkage over a period of time. In packaged goods frozen on the plate freezer, it is possible to have the product contain a certain amount of moisture frozen upon the product itself within the package and then by the use of cellophane and other moisture proof coverings protect the moisture within the package from being withdrawn.

PATENT PROBLEMS

The Bird's Eye process, exemplifying the plate type freezer, is ably protected by patents which have made the general use of this type of freezer difficult and it is for this reason that you do not see much activity developing along this line.

It is difficult to conceive of a plate type freezer which will not infringe some of the existing patents. The possible exception to this statement is the new unit which has been brought out by Clarence Birdseye, which consists of a vertical cylinder housing a number of refrigerated plates containing slots through which the product to be frozen passes downward from one plate to another in the process of being frozen.

The product to be frozen is conveyed along these plates to the slot by means of a wiping rod which brushes over the surface of the plate. However, this invention is in its infancy and so far as the writer knows has not as yet been completely tried out nor put into any commercial production.

The plate freezer is preeminently satisfactory for the quick freezing of packaged vegetables, but when it comes to the freezing of fruits, it is necessary to add to the product within the container a certain percentage of sugar, which tends to make the product approach the commercial cold pack method of freezing and the writer does not feel that this method will meet the ultimate demand as will the spray method.

Air Blast Freezing

The most common method of quick freezing which has been practiced for a long period of time consists of the use of cold air as a freezing medium. Originally the cold air was just circulated by means of large blowers in freezer cold storage rooms; later refinements included passing the product to be frozen on conveyors through a tunnel in contact with the cold air blast.

The inherent difficulty with this system is fundamentally the low heat conductivity of air and the excess shrinkage caused by the wide range of air temperature difference between the inlet and outlet air temperature drawing the moisture from the food.

In a well designed system of this kind it is possible to produce satisfactory results with minimum loss of weight and this is a subject which apparently has received far less attention than it deserves.

The only attempt with which the writer is familiar that has been made to meet better engineering requirements is that of the Finnegan process which was developed a few years ago in California by Mr. Finnegan. This process differs from the standard process in that the air is blown crosswise of a tunnel in contact with many feet of cooling coils which are located on each side of the tunnel, thus the air is in contact with the cooling coils for almost a longer time than it is in contact with the product, as a result of which the increase in temperature which the air undergoes in passing from one bank of coils crosswise to the other is reduced to a minimum and hence its moisture absorbing ability is lowered considerably. However, even in such a case it is not possible to reduce the shrinkage by weight less than about 1½% as against an increase in weight in the other two systems.

BEST FOR BULK

The air blast method of freezing lends itself primarily to bulk freezing of products in large quantities with minimum labor handling costs.

As stated above, because of the low rate of heat transfer of air, it becomes necessary to operate air tunnels at a temperature as near —40° F. as possible and this form of operation represents fairly high operating costs brought about not only due to the low temperature required for successful performance.

I think it can safely be said that the operating expense of an air blast tunnel will be almost twice that of a spray tunnel of like capacity and the investment in the equipment about 40% more.

However, up to the present time it presents the logical way for the quick freezing in bulk of large quantities of vegetables to which the spray system is not particularly well adapted, and the writer feels that with the growth of the demand for frozen foods considerably better engineering designs can be worked out in the air blast principle than has been accomplished up to the present time. It is certainly subject to a great improvement in this direction.

There have been developed many combinations of the air blast principles, such as the passing of the air through a brine spray as a cooling medium before coming into contact with the product, the idea being to improve the heat transfer ability of the air and to undertake to reduce as much as possible the absorption of moisture from the goods. None of these systems have survived the present day development.

NO PANACEA EXISTS

A resume of the foregoing would clearly indicate that at the present time it does not seem possible to undertake to make a single system meet all of the present day freezing requirements. Very definitely, at least in our opinion, the sugar spray system is far ahead of the other activities for the efficient and satisfactory quick freezing of fruits.

This may or may not apply specifically to the freezing of cranberries or blueberries since there is a demand for these products quick frozen without the use of sugar, which problem can be efficiently handled by an air blast. However, even with these fruits there is a decided advantage with the use of sugar.

When it comes to the making of pies or any other product where it is desirable to maintain the individual slice identity, the spray system with the use of sugar produces the only satisfactory results.

From the standpoint of bulk vegetables freezing, where volume and slice shrinkage is not a deterring factor, vegetables can be very satisfactorily frozen on an air blast system provided this system is properly designed to meet the characteristics of the products to be frozen.

When it comes to the freezing of goods in containers for the retail trade, the plate system offers so many advantages that up to the present time it really has no competitor and it is gratifying to note that this system is now being used for the freezing of so many different brands of vegetables that its benefits are going to be more widespread.

Regardless of the method by which the food is frozen, a great deal has been written and said about the necessity of keeping frozen foods at low temperatures after being frozen and some advocates have even gone so far as to state that cold storage rooms for the safe keeping of quick frozen products should be maintained at temperatures at least equal to —20° F.

LOW TEMPERATURE STORAGE

The theory of this low temperature is the fact that products of off flavor are developed by enzymic action which goes on within the product and which cannot be definitely killed but which can be minimized the lower the holding room temperature.

It seems to be the growing opinion that the future growth of enzymic action in the product is dependent upon the degree to which the product is treated prior to being frozen and, as applied to vegetables to the degree and extent to which the product is blanched.

If such is the case, then the main concern in the correct storage room condition is that of the relative humidity of the room to prevent freezer burn and shrinkage.

The interest which this question has brought out because of the rapid growth of frozen foods has opened up new avenues of research and it is only a matter of time before freezer rooms will have a sufficiently well maintained relative humidity so as to materially reduce this serious problem of shrinkage and freezer burn. Already steps have been taken in many instances to correct this difficulty with much progress reported as having already been accomplished.

*A talk delivered before the Frozen Foods Conference held in conjunction with the National Food Distributors Association.

Question of the Week

Answered By

F. O. JORDAN, Registered Consulting Engineer, State of Michigan

How Two-Temperature Valve Is Properly Used

Jeffersonville, Ind.

Editor:

I am not a refrigeration mechanic. My experience in this line is very slight. I am only giving you this information so you may see better to answer my question.

I have been studying refrigeration in your Master Service Manuals, they are very satisfactory, except one particular chapter.

Your Manual C-2, page 193, states that two-temperature valve is located in the lowest temperature unit. On page 197 it is stated the hot gas released by the snap-action valve may pass into the colder evaporator. In this case I assume that the valve would be in the warmer evaporator.

If the compressor is set to cut off at a pressure low enough to produce a temperature of freezing in the colder evaporator and the valve is in this line, what is to keep the other or the supposedly warmer evaporator to operate at a temperature to correspond to the pressure control?

My conception of this control is to place the two-temperature control in the warmer evaporator so as to keep the pressure higher and keep a warmer evaporator, while the motor control would keep a pressure low enough to keep the colder evaporator at the correct setting.

I am not doubting the correctness of your manual but I would like to get this clear in my own belief.

On page 195 quote "Remember always control the condensing unit with the coldest evaporator."

If the motor control is set to cut out at 10 inches of vacuum to be low enough to operate the lower temperature evaporator, in this case is it to be taken that the warmer is under sized for its job and must operate on this low vacuum to get a temperature which will be higher in the unit due to the under capacity of the evaporator?

L. E. T.

Answer: Yes, the two-temperature valve is placed on the warmer evaporator, since it can only make an evaporator warmer, not colder. This valve can only make the evaporator warmer because it acts as a sort of automatic throttling valve to raise the refrigerant pressure in the evaporator on which it is installed by introducing a resistance in the suction line.

HOW IT WORKS

The desired two-temperature effect is obtained by adjusting the valve until it backs up the pressure in the high-temperature coil until the required saturation temperature is obtained.

The temperature of the low-temperature coil depends upon the relationship between the total load on the system and the capacity of the compressor, as it balances out at the suction pressure of the compressor—less suction line pressure drop.

If the compressor is operated on low-pressure control, its operation obviously depends upon the low-temperature coil, since compressor and coil operate at the same pressure. Even if the compressor is operated by a thermostat, it is operated according to the low-temperature coil by placing the thermostat in the same part of the system as the low-temperature coil, because the demand on this coil generally is greater.

WHERE TO USE IT

Reason for the two-temperature system is that it may be necessary to keep the temperature in one coil above a certain level to prevent frosting of the coil, or excessive dehydration, or to avoid freezing in case of a liquid cooler. At the same time, a lower temperature may be needed in another coil to obtain freezing, or dehydration, etc.

As a rule, the low-temperature coil is placed in the service box requiring the lower temperature. However, this may not always be the case. For example, assume an installation where the coil in the low-temperature box is oversize so that it tends to maintain a temperature that is too low, while the coil in the high-temperature box is undersize so that it cannot keep the temperature low enough.

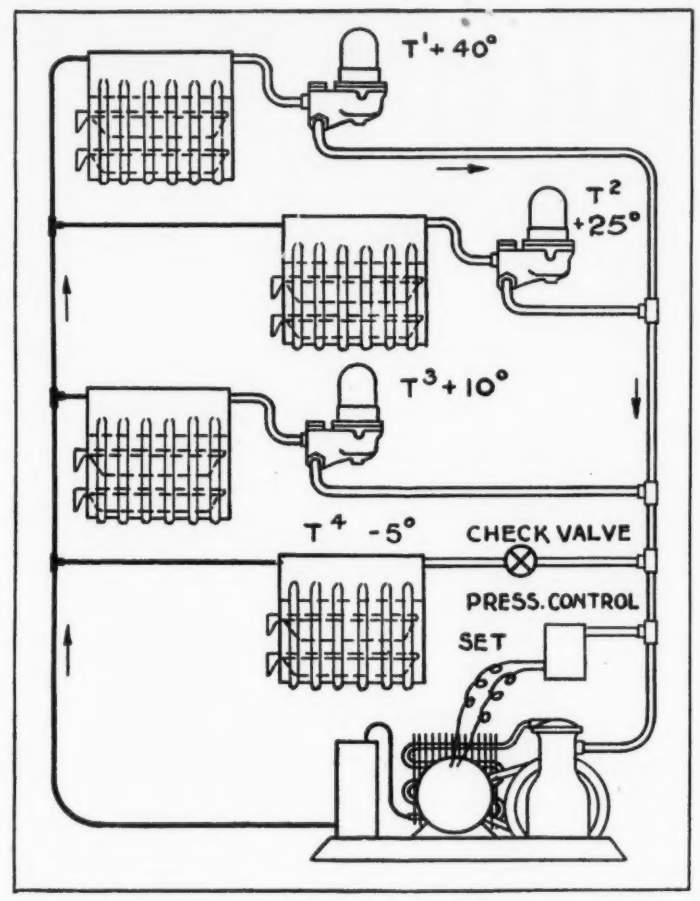
Under this condition, it might be necessary to carry a higher coil temperature in the low-temperature box than in the high-temperature box in order to maintain the required box temperatures, as the temperature of each box obviously depends upon the relationship between the **capacity** of the coil in the box and the load on the coil and box—(as long as the temperature of the coil is lower than the temperature of the box)—rather than merely on coil temperature.

USE OF CHECK VALVE

There is a tendency for the "hot" gas from the high-temperature coil to pass into the low-temperature coil during the off-cycle of the compressor, because of the tendency of refrigerant gases to pass from higher temperature to lower temperature, because the gas condenses more rapidly at lower temperatures so that the volume at lower temperatures is less.

To prevent this movement of gas from the higher temperature coil to the lower temperature coil during the off-cycle, it is customary to install a check valve in the suction line of the low-temperature coil.

Illustrating Use of Two-Temperature Valve



This drawing illustrates the use of multiple temperature snap-action valves, as explained by Mr. Jordan in the adjoining columns. The system has four evaporators to hold varying temperatures in a range from a high of 40° to —5° F. A two-temperature snap-action valve is at the outlet of each evaporator, except the one held at —5° F. A check valve is placed at the outlet of this evaporator.

Snell Tells Advantage Serviceman Has In Selling New Units

DALLAS, Tex. — Refrigeration service men should avail themselves of the unique opportunities open to them for the sale of new equipment, instead of being content with remaining mere repair men, declared Lou Snell, representative of Modern Equipment Corp., Defiance, Ohio, in speaking briefly at a recent meeting of the Lone Star chapter of Refrigeration Service Engineers Society.

The service man, he asserted, has a decided "edge" in opportunity for such sales, since he is dealing with individuals or firms whose present refrigerating equipment is not functioning properly.

"It's like the fellow who can't get his car started," Mr. Snell explained. "If a car dealer could catch him at that strategic moment, selling him a new car would be comparatively easy. But by the next day, perhaps, the old car will again be in working order and the owner will not be in such a receptive mood for new-car sales talk.

"Even if a man has $1,000 invested in his present equipment," Mr. Snell pointed out, "if this equipment is not functioning properly it may well be possible to sell him $2,000 worth of replacement equipment."

★ ★ ★ ★ ★ ★ ★ ★ ★

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'Emergency Duty Plan' of St. Louis Service Company Impresses Customers, Builds Business

ST. LOUIS — By offering a well-balanced, 24-hour emergency service plan, Mayflower Authorized Service here has cut refrigeration breakdown losses for customers and has built its business by "selling" dependability.

Chief sales agent for the emergency service is the firm's display advertisement in the yellow section of the telephone directory, giving a night telephone number for the convenience of customers or prospects whose refrigeration equipment quits in the night or evening.

The 24-hour shifts are staggered among the nine service men making up the service crew. Each of the nine service men has the responsibility of being on call one evening a week, dropping back one day each week so that no man is forced to serve two consecutive Saturday evenings.

The service man on call is allowed to go to his home, where he must be available for duty the entire night. With him he takes the service repair truck. A telephone answering service is given his home number and relays all calls as soon as they are received.

When a great number of breakdowns occur, more than one man can reasonably handle, the remaining eight men have instructions to call in to the telephone answering service informing them where they can be reached during the evening. Thus, when extra hands are needed, another man can be rushed to the job swiftly.

The emergency service is advertised in newspapers and direct mail, in addition to the telephone directory display.

On each call the service men are careful to explain the entire system, and word-of-mouth advertising spread in this manner has pulled in many new customers, it is said.

Savings to customers by offering service when it's needed—at any hour of the night or day—has built confidence and income for this service company, which makes emergency calls pay long-term dividends.

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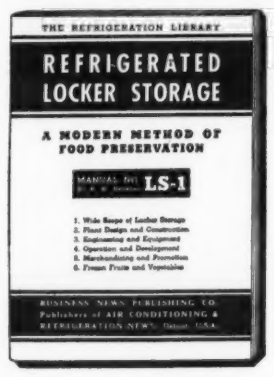

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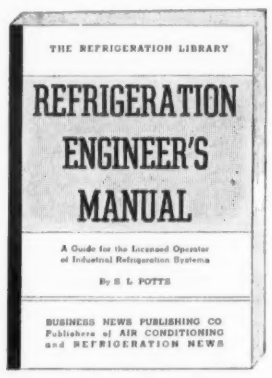

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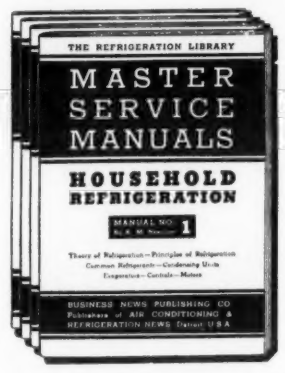

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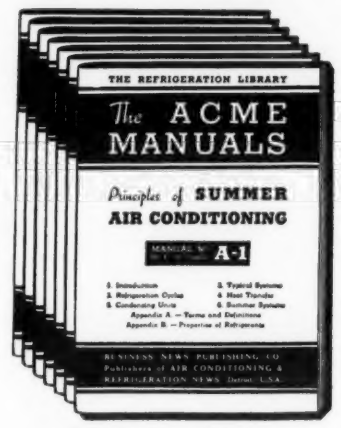

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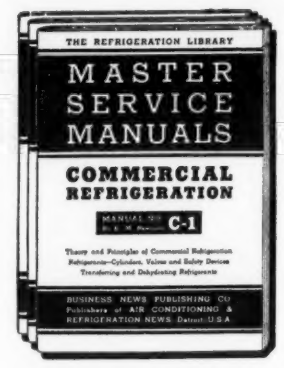

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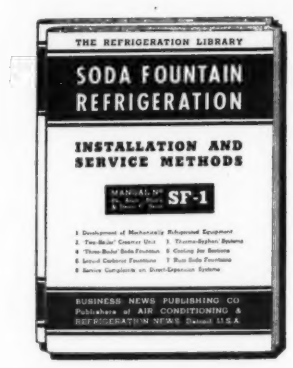

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Air Operated Control System at Disney Studios Has Unusual Features

Close Control Limits Protect Health and Comfort of Workers

BURBANK, Calif. — Control features seldom found in air conditioning systems employed for human comfort have been incorporated in the Johnson Service Co. equipment now being installed in the Walt Disney studios, located in the San Fernando Valley, near here.

Under the supervision of W. O. Stewart, Johnson Service manager for Los Angeles, engineers have installed differential thermostats, pilot mechanisms on hot and cold water valves, "long travel" piston type air motors on dampers, and control panels which show the exact position of all parts of the control system.

According to Mr. Stewart, Walt Disney and his chief engineer, William Garity, demanded that the utmost care be exercised in the proper application and location of controlling instruments, to prevent the possibility of drafts or sudden changes in delivered air temperatures that might prove detrimental to the health and comfort of occupants.

STUDIOS ENCLOSED

Many small studios and preview galleries are completely enclosed in sound-proofed walls, without exposure to outside temperature conditions, to insure 100% elimination of noise. Distribution of air in the larger studios was influenced by the degree and type of occupancy.

Since a majority of the air conditioning units use hot and cold water distributed from the Central Plant, control of these mediums occurs at this point. In this building are located two 190-hp. boilers, the G-E multiple refrigerating units, and water circulating pumps. Water is distributed from the central plant to air conditioners located in each building.

The temperature of the water for winter heating is controlled by remotely adjusted thermostats and is varied in accordance with changes in outside air temperatures. The temperature of the water for summer cooling is maintained closely by thermostats which control the number of refrigerating units on the line.

Well water, available at an average temperature of 67°, is used for pre-heating and pre-cooling the incoming air. Special thermostats control the flow of well water, permitting increased flow when low outside temperatures call for pre-heating of the air. When outside air temperatures approach the water temperature, the flow is restricted. Again, as outside temperatures rise, the amount of well water used is increased to provide pre-cooling.

DIFFERENTIAL THERMOSTATS

All thermostats controlling the temperatures of the many zones are of the remotely adjusted type. Thermostat settings are increased automatically, on corresponding rise of outside air temperature, in a ratio of approximately 1 to 4.

While most of the buildings have a fairly constant occupancy, it is felt that, due to the continual travel from office to office and from building to building during the day, too great a differential in temperatures between outside and inside would prove extremely uncomfortable.

In the Animation Building, the temperatures of several hundred offices are controlled by more than 150 thermostats. In each wing, individual air conditioning units are installed. Air which is pre-heated in winter and pre-cooled in summer is humidified and delivered through hot water coils to a hot plenum chamber and through cold water coils to a cold plenum chamber.

Thermostats in each zone control small proportioning dampers in individual take-offs, in the hot and cold plenums. Corresponding hot and cold take-offs are interconnected and the proper blend of heated and cooled air is delivered to each zone. An average relative humidity for comfort is maintained, both summer and winter, in each wing.

Throughout the Inkers and Painters Building, Camera Building, and Cutting Building on Film Row, heating and cooling of air is accomplished by individual heating and cooling coils, located in the air supply ducts to each zone. Proper sequence action of valves is maintained through the use of pilot mechanisms. Through the use of these mechanisms on all valves, the opening and closing of each is accurately restricted to the designed range, regardless of fluctuations in water pressure.

Relative humidity is controlled separately in each zone. Where film is handled, the percentage of relative humidity is maintained at approximately 55% to prevent accumulation of static electricity.

AIR QUANTITY VARIED

In the Process and Camera Buildings, auxiliary controls are provided, to permit the operator to change manually the conditions in any zone, as desired for special processes, without disturbing the fine adjustment of the automatic control instruments.

The Orchestra Stage Building consists primarily of an orchestra shell, facing a large Auditorium. No drops or curtains separate these two areas. Occupancy of the areas may occur individually or simultaneously. In order to insure constant temperatures with sudden changes in load conditions, controls are installed to vary the quantity of air delivered to each area in accordance with load demands.

The various functions of the Live Action Stage demand that air distribution be extremely flexible. Through switch-controlled dampers, air may be delivered through ceiling outlets and exhausted through floor outlets. By reversing the controls, air may be delivered through the floor outlets and exhausted through the ceiling openings.

DIRECT READING DIALS

A new and important development in indicating devices has been utilized here to aid the operating engineer. Panel boards are erected in each fan room. Gauges, connected to control devices for each zone, are mounted on these boards. Special dial indicators show the position of all dampers, switches, and valves. Thus, at a glance, the operating engineer is able to determine existing conditions in each of the many zones of all buildings.

Many of the devices involved in the Disney automatic temperature control installation were developed especially to meet the demands of air conditioning control problems.

For example, the remotely adjusted thermostats are comparatively recent additions to the family of automatic regulation instruments. These thermostats are set, like any other type, to operate at a given temperature.

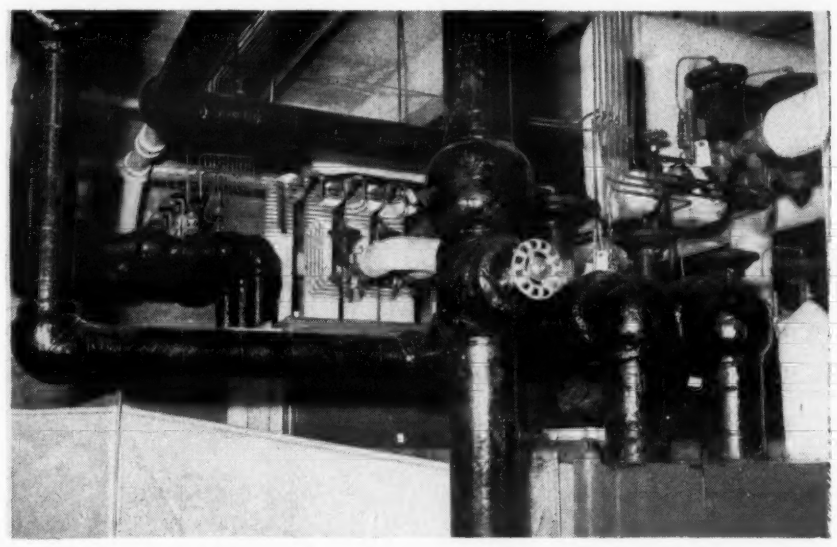
However, that operating temperature may be changed by another thermostat (or manually operated switch) located at a remote point, within certain limits and in accordance with almost any desired relative relationship.

PISTON AIR MOTORS

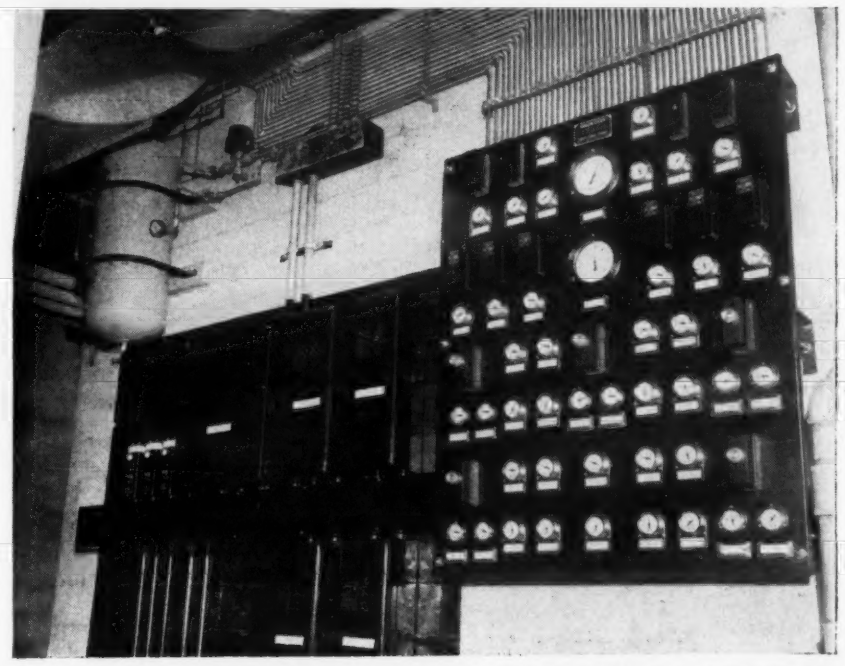
Many of the air motors which operate dampers, at the command of the thermostats and switches, are of the "long-travel" piston type, especially designed for gradual positioning. Direct connection between motor and damper, without the usual levers which reduce the useful operating force, provides maximum power for operating a damper and for holding it rigidly at intermediate positions.

According to Mr. Stewart, the use of differential thermostats, pilot mechanisms on valves, "long-travel" piston type air motors on dampers, and complete indicating devices, enables Disney engineers to satisfy all requirements for accurate control of temperature, humidity, and air volumes in all parts of the studios.

"Long travel" piston type air motors are used to control dampers in ductwork extending upward from air conditioning units visible at the bottom of this picture. No levers are necessary for exact positioning of dampers when control motors of this type are used.



Use of pilot mechanisms on valves supplying hot and cold water to air conditioning units (at bottom of picture) assures positive action of the valve irrespective of pressure on the air control line. Pilot mechanisms use maximum of air pressure available irrespective of control line pressure.



Engineers in the Walt Disney studios can tell the positions of all valves, dampers, and other controls at a glance by looking at the large control panels like the one shown here. Note air lines serving the panel board at top and the compressed air tank located in the upper left hand corner.

Packing Methods Given In New Booklet

WASHINGTON, D. C.—Description of the containers and methods used in packing machinery for export shipment are contained in a 530-page handbook, entitled "Modern Export Packing," just issued by the Department of Commerce.

The handbook also includes descriptions of the methods developed for the safe packing of several hundred representative American export products, prepared with the aid of shippers, exporters, packing engineers, and container manufacturers.

Copies of the booklet, which is priced at $1, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from any of the district offices of the Bureau of Foreign and Domestic Commerce.

General Service Complaints on All Types of Counter Freezers (Concl.)

Complaints That Are Indicated By Incorrect Operation of Compressor

By Arch Black and Dean C. Seitz

Editor's Note: This instalment of the series of articles on the servicing of counter ice cream freezers concludes the information on "general complaints" that may apply to all types of freezers. The authors will next discuss expansion valve troubles in ice cream freezers, and will follow with a discussion on complaints on specific makes.

Complaints on Refrigeration System

Complaint No. 8—Compressors Runs Continuously, Won't Lower Temperature

The cause must be one of the following:

1. Improper adjustment of expansion valve.
2. Refrigerant shortage.
3. Pressure control set too low.
4. Running compressor beyond its capacity in making cream.
5. Inefficient condensing unit.
6. Customer using hardening cabinet to dispense ice cream.

Remedies on the above causes have already been explained or are obvious. If the cause is No. 6, remind the customer that a hardening cabinet cannot be used successfully as a dispensing cabinet. Frequent opening of the hardening cabinet doors must be avoided.

Complaint No. 9—Frequent Stopping & Starting Of Compressor

1. Water supply shut off. Plugged, or water valve not adjusted.
2. Inefficient compressor.
3. Controls not set properly.
4. Too much refrigerant in system.
5. Air in system. Check high side pressure.
6. High pressure cut-out not adjusted correctly.
7. Restricted refrigerant lines.

Complaint No. 10—Excessive Water Consumption

1. Water valve not correctly adjusted.
2. Air in system making excessive high pressure and keeping water valve open.

Complaint No. 11—No Refrigeration (Oil Logged)

Cause: No attempt will be made here to enumerate the many causes for such a complaint, but it is recorded here for the specific purpose of bringing to the service engineer's attention the possibility of an oil bound freezer.

Effect: As far as the operator is concerned he may note that the condensing unit runs but he gets no results in the manufacturing of his ice cream. To determine when a freezer is oil bound is very difficult at times, for frequently when the service engineer checks the condensing unit he may find that the back pressure and the head pressure, etc. are okay and with the exception that there is no refrigeration everything seems to operate normally. Where such a condition is found it suggests possibilities of oil binding.

Remedy: On some counter freezers the manufacturer has provided a bypass and valve between the freezer cylinder and suction line. In such cases the remedy is very easy as all that is necessary is to merely crack open the bypass valve and allow the oil to be drawn into the suction line.

Where this is not provided for and a safety valve is installed (this safety valve is provided in some cases to prevent damage when sterilizing freezers—see later articles for details) then luke-warm water can be put in the freezer which will increase the pressure of whatever refrigerant may be trapped in the oil and agitating it to a point where the oil will cease to be dormant and be moved into the suction line.

The only other method is to remove the expansion valve and disconnect at the suction line. Where the customer is willing to pay for new oil and some refrigerant, a drum of refrigerant can be connected to the expansion valve side of the freezer cylinder and the oil blown out. This is a wasteful method in some cases, but is sure. Otherwise if the oil is to be saved be sure to have a clean container to catch the oil, which can only be blown through with less pressure, at the suction side.

Whatever method is used be sure that the oil removed is returned to the crankcase or that the crankcase level is brought to normal by adding new oil.

In the foregoing only outstanding complaints have been dealt with and suggested remedies as would apply to practically any type counter freezer. As already mentioned, more details will follow as they apply to respective freezers and their combination systems.

Troubles reported as may be diagnosed as indicative of mechanical difficulties that may be traced to compressors, expansion valves, controls, etc. could be elaborated to a great extent. Expansion valve stuck, power element gas charge lost, control points arcing, leaking flapper valves, cracked valve discs, etc. could be causes to be applied to one or more of the complaints enumerated. Such causes and remedies are not being gone into in full detail as it is understood that the reader is well enough acquainted with such points.

However, in low temperature equipment it is sometimes more difficult to diagnose the cause of the trouble correctly than in so-called high temperature equipment, therefore, the articles to follow will give detailed information regarding testing expansion valves, removal of moisture from low temperature equipment, location of dehydrators, etc.

Carrier Brings Out New Psychrometric Charts

SYRACUSE, N. Y.—Accurate solutions of psychrometric problems at all barometric pressures are now possible with the revised Carrier psychrometric charts. Two new charts, for wet-bulb temperatures below 32° F. and for normal atmospheric conditions, are now available.

This is said to be the first important revision of the psychrometric chart since Willis H. Carrier disclosed his rational psychrometric formulae in 1911.

Hales-Mullaly Stars Get Trip To Coast

OKLAHOMA CITY, Okla. — Winners in the annual statewide sales contest conducted by Hales-Mullaly, Electrolux distributor, 130 dealers and salesmen were guests of the company on a two-week trip to California. The delegation was to visit the Grand Canyon, Los Angeles, Yosemite, San Francisco, Salt Lake City, and Colorado Springs.

New Air Cooling Use — For 'Hot' Jai Alai Stars

MANILA, P. I.—Spread of the spectacular South American game, Jai Alai, has resulted in the construction of an air conditioned court here. The equipment was installed by the Pacific Commercial Co., York distributor for the Philippine Islands.

The game, which is played with wicker rackets, is similar to handball, but much faster. Spanish in origin, it is very popular in South America and has recently been introduced in the United States.

Business Gain Reported By Wolverine Tube

DETROIT—Directors of Wolverine Tube Co. have declared the regular quarterly dividend of $1.75 per share on the company's 7% preferred stock, payable Sept. 3, 1940 to stockholders of record Aug. 26.

In connection with the dividend declaration, the company stated that July sales were 50% ahead of July last year.

CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, $2.00, additional words, four cents each. Three consecutive insertions, $5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS WANTED

EXPERIENCED ENGINEER, refrigeration and air conditioning, design and manufacture, desires opportunity for employment. Address Box No. 1255, Air Conditioning & Refrigeration News.

FREE LANCE designer and inventor with 25 years general engineering and creative design experience. Past 15 years as development engineer on refrigerating machinery, specializing on hermetically sealed compressors. Will accept appointment with responsible company on basis of ability to produce results. Address Box No. 1258, Air Conditioning & Refrigeration News.

ENGINEER, young, intelligent, experienced, also ITI graduate. Wants position in tropics. South America preferred. Also some experience in mine ventilation and construction work. Box No. 1259, Air Conditioning & Refrigeration News.

EXPERIENCED HEATING and air conditioning salesman desires position with responsible firm. Graduate of I. T. I., Chicago, in both engineering and service. Age 40, single, own car. Will consider partnership. Box 1261, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

REFRIGERATION SALES Engineer—who has demonstrated sales ability and broad knowledge of commercial application engineering, for permanent position with reputable national manufacturer enlarging its business. Type of man wanted has a job but is interested in a real opportunity. Application will be treated confidentially and employer's organization is aware of this ad. Here is a real opportunity for the right man. State detailed qualifications and experience. Salary open. Box No. 1260, Air Conditioning & Refrigeration News.

FRANCHISES AVAILABLE

SEND FOR PRICES and literature on the General 1940 all streamlined refrigerator display case line. Over 40 years experience manufacturing good commercial refrigerators. On a comparative price test with other makes of equal specifications, prices are lowest in the country. GENERAL REFRIGERATOR & STORE FIXTURE CO., 5th & Bainbridge Sts., Philadelphia, Pa.

SALESMEN to sell Ehrlich refrigerator display cases, walk-in coolers, reach-in refrigerators, refrigerating units, to meat markets, grocers, taverns, etc. Financing arrangements to help sell. Some good territories open. Write Dept. A for full information or see EHRLICH REFRIGERATOR MFG. CO., St. Joseph, Mo.

EQUIPMENT WANTED

WANT TO BUY—25¢ per day, Coin Meters. Used or reconditioned. Write, giving full details. W. G. SHELTON CO., 1709 Locust St., St. Louis, Mo.

EQUIPMENT FOR SALE

CARRIER, SERVEL, Universal, ½ and ¾ H.P. air and water cooled condensing units new in original factory crates, complete with motor, belts, pulleys, water valves, starters, etc. Fully charged with "F-12"—ready to operate. A.C. or D.C.—110 or 220 V. At less than manufacturer's cost. SCHEMAN CONTRACTING SERVICE, 239 W. 39th St., New York, N. Y.

FRIGIDAIRE compressor bargains. 1 hp. Frigidaire "C" compressor units—$15.00 without motors—$38.50 complete. ½ hp. Frigidaire "N" units—$10.00 without motors—$23.00 complete. ⅓ hp. Frigidaire "K" units—air cooled—$17.50 complete. 10% discount in lots of six. Wanted single phase, two phase, three phase, and D.C. motors. EASTERN SALVAGE COMPANY, 208 Lafayette St., New York City.

BRAND NEW Westinghouse one ton lowsides complete with fans, coils, expansion valves, manual controls, heat exchanger, and cabinet $32.50 each. Brand new General Electric ½ H.P. and 1 H.P. highsides also available. Write for details. ASSOCIATED REFRIGERATOR PLANT, INC., 3028 W. Hunting Park Ave., Philadelphia, Pa.

USED COMPRESSOR Close-out—Frigidaire, Servel, Kelvinator. 1 HP compressors complete with motors $23.50 each. ½ HP compressors complete with motors $19.50 each. ⅓ HP compressors complete with motors $15.00 each. With little overhauling, above units can be put in perfect working condition. ATLANTIC REFRIGERATION CO., 1611 Bedford Avenue, Brooklyn, N. Y. Telephone Slocum 6-4600.

DEALERS! SERVICEMEN! Export Buyers! Get in touch with us for every make of used refrigerator at low prices. Our refrigerators are sold "AS IS," exactly as received. We sell Frigidaire, General Electric, Westinghouse, Kelvinator, Electrolux, Crosley, Norge, Coldspot, Leonard, Hotpoint, Stewart-Warner, Sparton, Copeland, Trucold, Gibson, Majestic, Grunow, Apex, Universal, Mayflower. PILGRIM REFRIGERATION CO., 45-33 50th Street, Woodside, Long Island, N. Y.

BRAND NEW air cooled High Sides at exceptionally low prices. These condensing units are complete, ready to be plugged in. They are made up with all new parts; General Electric or Frigidaire Compressor, General Electric or Delco Motor, heavy duty condenser, heavy base, receiver, valves, etc.; charged with Methyl or "Freon." They are available in ⅓-¼ and ½ H.P. GENERAL REFRIGERATORS CORPORATION, 518 East 20th Street, New York, N. Y.

AVAILABLE: Overhauled ¼ H.P. twin cycle Frigidaire units complete with pressure switch—$17.50 each, f.o.b. Philadelphia. Each unit crated and fully guaranteed. ASSOCIATED REFRIGERATOR PLANT, INC., 3028 W. Hunting Park Ave., Philadelphia, Pa.

REPAIR SERVICE

FREE HERMETIC CATALOG complete with prices on refrigerator units, rebuilding and exchange service. General Electric, Westinghouse, Majestic, Frigidaire and a complete stock of Grunow compressors and parts. Immediate shipment. For your copy specify catalog A. SERVICE PARTS COMPANY, 1101-3 North 24th Avenue, Melrose Park, Illinois.

CONTROL REPAIR service. Your controls repaired by expert mechanics, with special precision equipment. Supervised by graduate engineers. We stress perfection and dependability before price. One year guarantee on domestic controls. Any bellows operated device repaired. HALECTRIC LABORATORY, 1793 Lakeview Road, Cleveland, Ohio.

COMMERCIAL AND DOMESTIC controls reconditioned like new at a small cost. All work guaranteed for one year. We also repair all types of relays with same guarantee. UNITED REPAIR SERVICE, 342 West 70th St., New York, N. Y., TRafalgar 4-2557-8.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER, (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

Air Conditioning Aids Optical Firm's Sales, Ends 'Glass Flex'

ST. LOUIS—A York air conditioning system installed in the Albert Aloe Co., optical firm, has meant the difference between a summer slump in business and steadily mounting profits. R. H. Tate Co., air conditioning firm, installed the system.

Spectacles sold in an air conditioned store, where the temperature is kept to a certain norm, are bound to be better and more satisfactory to their wearers, says Albert Aloe, in reporting a 20% pickup in summer business.

Wavering temperature and excessive summer heat has quite often resulted in a distortion of delicately ground glass, which is reflected in eye discomfort for the customer. For this reason, all glass stocks in the Aloe store are kept in a conditioned room, and the temperature over the entire store is kept at an even 75° F.—sufficient to insure that no "glass flex" occurs in microscopically ground spectacle lenses.

Tests Mr. Aloe himself conducted have proven that the variation in eye correction, when fine optical glass is subjected to various temperatures, is enough to cause considerable strain on the wearer's eye.

Another advantage is that customers have shown a marked desire to have glasses fitted in air conditioning optical salon rooms, where as much as an hour is necessary. An average of five new customers per day has been recorded at the Aloe store.

Porcelain Enamel Group To Hold Forum Oct. 16-18

CHICAGO—Tentative program for the fifth annual forum of Porcelain Enamel Institute, to be held at the University of Illinois, Urbana, Oct. 16 to 18, is designed to appeal to operating men in all branches of the industry.

Opening session, on the afternoon of Oct. 16, will be a symposium on the use of clays in enameling, in which a half dozen authorities will outline their experiences with this phase of enamel practice. That evening, two color movies will be shown, the first telling the story of steel and the second illustrating the work being done in testing architectural porcelain enamels by the National Bureau of Standards.

Session on Oct. 17 will hear about new developments in enameling; treated water in the enameling industry; infra-red drying; and the proper design of drying equipment and control of humidity. After luncheon, papers will be presented on the evolution of enameling iron; iron oxide in porcelain enamel; stretch testing of steel; and a review of the Institute's new test for the sagging of iron and steel sheets. Annual banquet will be held that night.

Symposium on the morning of Oct. 18 will consider the use of nepheline syenite, fine grinding of colors, cover coat practice for quality work, and enamel plant control performance and cost. Report on development of the tentative test on chipping is scheduled for the afternoon session, following which an enameler's version of the "stump the experts" question and answer session will be held.

Also contemplated by the forum committee, dependent upon developments within the next few months, is an extra session, in which would be discussed the industry's operation in time of emergency and its cooperation with the national defense program.

Holdorf Retires as a Graybar Manager

ST. PAUL—W. H. Holdorf has retired as manager of the St. Paul office of Graybar Electric Co., electrical appliance and supplies distributor, after 20 years of service. Succeeding him will be Lloyd Luckman, manager of the lamp and lighting department of Graybar's Minneapolis office.

Knapp Offers Sales Helps On Small Appliances

ST. LOUIS—To call to the attention of the major appliance industry and the general public the important role played by the smaller or "traffic" appliances, A. S. Knapp, president of Knapp-Monarch Co., maker of a complete line of small appliances, has prepared a 32-page illustrated booklet entitled "A New Way To Sell."

Designed especially for retail merchants and their salesmen, this booklet is packed with practical, workable selling suggestions. Tips are given on how to use small appliances most effectively as traffic pullers, door openers, and "come-ons" for the sale of major appliances. Ideas for special promotions are suggested. Detailed information on the construction of various types of displays is offered. Mr. Knapp points out that some 14,000,000 of these appliances were sold last year.

G-E and Frigidaire Pace Refrigerator Advertisers In Magazines

(Concluded from Page 1, Column 5)

Philco, in its second year as a refrigerator manufacturer, spent $173,945 in Collier's, the Post, and Liberty to walk off with sixth honors. During the first six months of 1939 Philco spent only $77,100 in advertising its new refrigerator in the same number of publications.

Norge spent $67,550 in three periodicals. Hotpoint and Crosley, both of which restricted their magazine list to Saturday Evening Post and Collier's, disbursed $51,000 and $14,500 respectively.

First seven ranking spenders in the household refrigeration field maintained the same relative positions that they held during the first six months of 1939.

Although the two leaders, General Electric and Frigidaire, spent less during the first half of this year than they did during the corresponding period of 1939, sizeable appropriation increases by Kelvinator, Westinghouse, Servel, and Philco more than made up the deficit.

Water cooler advertising by three major manufacturers covered in the survey totaled $24,620 for the six-month period. Frigidaire spent $8,870 in two business publications and two news magazines, while G-E and Westinghouse restricted their respective expenditures of $8,750 and $7,000 to Time.

Other commercial refrigeration advertising reported included York Ice Machinery Corp. with $9,850, Brunner Mfg. Co. with $5,335, and Frick with $4,420.

Where Advertising Funds Were Spent

Brunner

Brunner Mfg. Co.
Commercial Refrigeration

Time	$ 5,335
Total	**$ 5,335**

Crosley

Crosley Corp.
Electric Refrigerator

Saturday Evening Post	$ 8,000
Collier's	6,500
Total	**$ 14,500**

Frick

Frick Co.
Commercial Refrigeration

Time	$ 2,655
Business Week	1,195
Nation's Business	570
Total	**$ 4,420**

Frigidaire

Frigidaire Div., General Motors Corp.
Electric Refrigerator

Saturday Evening Post	$ 92,575
Good Housekeeping	29,040
Life	28,117
Women's Home Companion	24,860
Better Homes & Gardens	17,300
The American Home	14,900
Household	14,400
McCall's	11,000
National Geographic	9,900
Farm Journal & Farmer's Wife	8,180
The Parents' Magazine	6,325
Country Gentleman	5,300
House Beautiful	5,200
House & Garden	4,700
Total	**$271,797**
Water Cooler	
Nation's Business	$ 3,345
Business Week	1,935
Newsweek	1,840
Time	1,750
Total	**$ 8,870**

General Electric

General Electric Co.
Electric Refrigerator

Saturday Evening Post	$103,500
Collier's	56,700
Liberty	27,600
Good Housekeeping	26,400
Ladies' Home Journal	23,000
Woman's Home Companion	22,600
Better Homes & Gardens	20,150
Country Gentleman	10,600
Time	10,500
National Geographic	9,000
American Magazine	8,160
True Story	7,800
Redbook	6,900
The Parents' Magazine	5,250
House Beautiful	5,200
Hearst's-Cosmopolitan	3,675
Total	**$347,035**
Water Coolers	
Time	$ 8,750
Total	**$ 8,750**

Hotpoint

Edison General Electric Appliance Co., Inc.
Electric Refrigerator

Saturday Evening Post	$ 28,500
Collier's	22,500
Total	**$ 51,000**

Kelvinator

Kelvinator Div., Nash-Kelvinator Corp.
Electric Refrigerator

Saturday Evening Post	$ 85,500
Collier's	67,500
Life	55,222
True Story	17,400
Household	17,100
Total	**$242,722**

Norge

Norge Div., Borg-Warner Corp.
Electric Refrigerator

Saturday Evening Post	$ 50,500
Woman's Home Companion	8,550
Ladies' Home Journal	8,500
Total	**$ 67,550**

Philco

Philco Radio & Television Corp.
Electric Refrigerator

Collier's	$ 83,870
Saturday Evening Post	71,675
Liberty	18,400
Total	**$173,945**

Electrolux

Servel, Inc.
Gas and Kerosene Refrigerator

Saturday Evening Post	$ 48,000
Life	28,900
Good Housekeeping	25,200
Liberty	24,540
Household	21,600
Better Homes & Gardens	18,450
The American Home	15,860
Country Gentleman	11,821
Capper's Farmer	7,828
Total	**$202,199**

Westinghouse

Westinghouse Electric & Mfg. Co.
Electric Refrigerator

Saturday Evening Post	$ 47,725
Collier's	37,800
Good Housekeeping	29,040
American Magazine	25,410
Life	24,450
Better Homes & Gardens	17,300
The American Home	14,900
Household	14,400
Total	**$211,025**
Water Coolers	
Time	$ 7,000
Total	**$ 7,000**

York

York Ice Machinery Corp.
Commercial Refrigeration

Time	$ 4,950
Fortune	2,800
Business Week	1,830
Total	**$ 9,580**

Ah Sleep, It Is an Air Conditioned Thing—

'Hot & Cold Water' Run This Bed

BUFFALO — The age old argument, of whether one should sleep on top of a feather tick, or under it, may soon be relegated to limbo along with bed warmers, "comforters," downy quilts, and "Hudson Bay" wool blankets, if the invention of two Buffalo scientists is accepted by a waiting world.

Herman A. Brenner and Eugene L. Barnes of the Therm-O-Rite Products Co. have not invented another "air conditioned" bed. Rather, their answer to the problems of cold feet, insomnia, restlessness, and other nocturnal discomforts is a "liquid controlled" bed, complete with "hot and cold running water"—like small town hotel rooms.

As in all great inventions, simplicity is the keynote of the Brenner-Barnes system for sound sleep without snoring. The bed can be "plugged-in" to any water system. (With the aid of a master plumber.)

During hot weather water passes through a special coil, said to keep its temperature below room temperature, and thence to a special mattress honey-combed with rubber tubing. The temperature of the water (and the mattress) is regulated by a knob beside the sleeper. Less than 10° F. change has been found to be a satisfactory range between summer and winter comfort, the inventors say.

The bed was invented about three months ago, as a by-product of the "frozen sleep" machines which the company makes for cancer treatments.

For winter operation the same system is used with the addition of a small heater in the water coil. Estimated cost of operation is 50 cents per month. Should the water pressure get too high a safety valve is provided to prevent the "liquid cooled bed" from becoming a shower bath.

"We were working originally on a cooling system which would be more efficient and less expensive than the air conditioned bed invented last July by Dr. F. K. Kirsten of the University of Washington," Mr. Brenner said. "But this August cold spell gave us the idea of putting in a heating system, making the complete unit worth about $75. I've used one of our beds myself and can guarantee that the water-filled mattress will never make anyone seasick and never needs any anti-freeze."

'Dial Your Weather' Is Kirsten Claim

SEATTLE—Invention of an "air conditioned" bed, which is said to provide heating in winter and cooling in summer, and which permits sleepers to dial their own weather for the night by means of a knob at the head of the bed, has been announced by Dr. F. K. Kirsten, aeronautical engineer.

According to Dr. Kirsten, "air conditioning" is made possible by means of an air-cushion underneath the sleeper, and a new form of air-blanket over him. He estimates that the new bed can be manufactured for less cost than present high class beds.

The bed is a sheet metal box, minus a top. Over this open space is stretched a fabric sufficiently air tight to form a good cushion when the box is filled with compressed air, but porous enough to permit slow seepage of this compressed air, whether warmed or cooled, up and around the sleeper.

Asbestos lines the steel interior, and an electric heating tube in the box warms the air. If cooling is wanted, it is only necessary to turn down the heat, the inventor claims, for the air always comes into the box cooled automatically by expansion.

The compressed air comes from a basement tank, at 150 pounds per square inch. In the bed, this pressure reduces to only a quarter of a pound per square inch. Expansion automatically reduces the temperature to 52° F., it is said.

A single special cover goes over the sleeper—a hollow blanket. Air from the bed below passes through fine tubes into the foot of this blanket, and rolls forward inside the fabric to exit around the sleeper's shoulders. But by the time it reaches there, Dr. Kirsten claims, it has lost its speed and temperature, so that there is no draft blowing on the sleeper's neck.

Cooling Costs Reported For Omaha Building

OMAHA, Neb. — Air conditioning equipment serving the eight-story office building owned by the Woodmen of the World Life Insurance Society is operated at a cost of 32 cents per square foot per year, according to Walter C. Johnson, manager of the building.

Summer temperatures of 78° F. to 82° F. are carried throughout the building by a Carrier air conditioning system, installed five and one-half years ago. A central refrigeration plant supplies cold water to conditioners located on the various floors and in the WOW broadcasting station.

Mr. Johnson feels that air conditioning equipment in an office and retail store building is a strong factor in holding tenants and keeping them better satisfied. The building has been 96% occupied since the air conditioning was purchased.

The cooling equipment has been kept in continuous service since it was installed by two men who devote their full time in two shifts.